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The OIL WEEKLY

OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCTION AND PIPE LINE DIVISIONS

THE WEEK'S NEWS INTERPRETED

JUNE 13, 1932
Volume 65 Number 13

Sold by Supply Stores Everywhere

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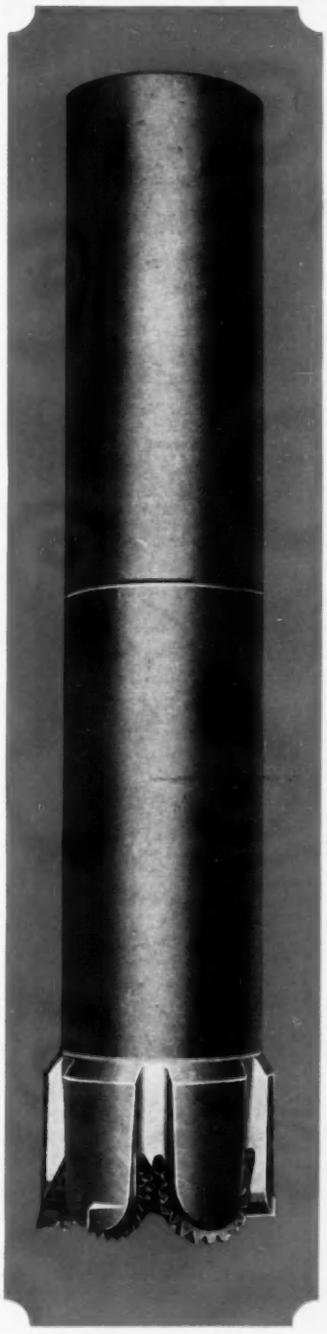

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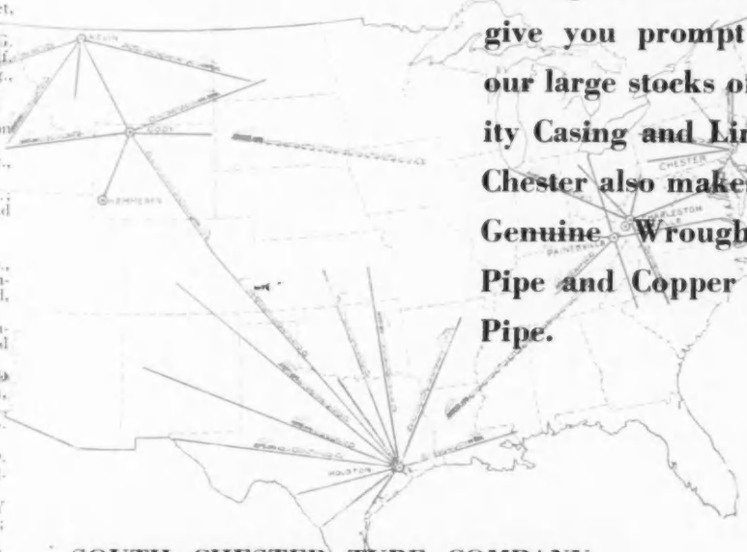

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Chester also makes all classes of Genuine Wrought Iron Line Pipe and Copper Bearing Steel Pipe.

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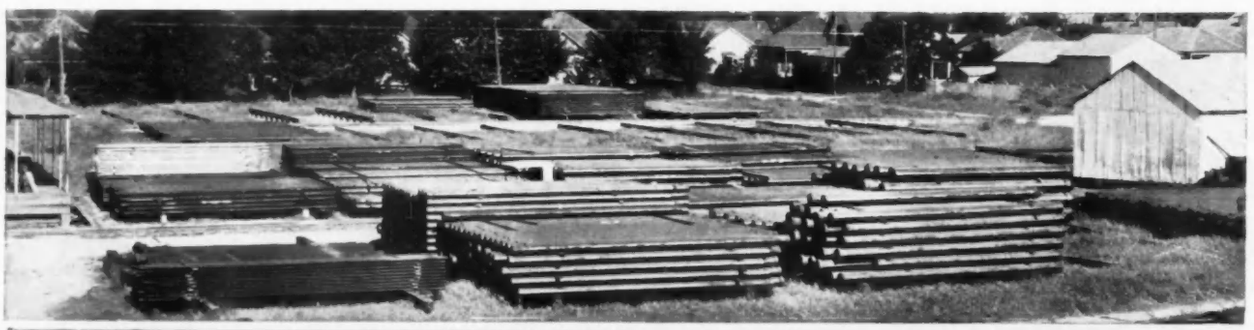

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STEEL CASING

SPECIALISTS IN CASING FOR DEEP WELL DRILLING

LINE PIPE

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

IN the field of *transportation* nothing indicates progress more clearly than the time required for a message to travel from New York to Boston: In 1789, by coach, *7 days;* in 1932, by air mail, *2 hours.*

In the field of *oil industry pumps,* nothing indicates progress more clearly than a comparison of present-day models with those in use before GASO entered the field.

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The TIGER TRADE MARK is a symbol of Strength and Dependability
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When oil-field operators think of wire lines they think of American Wire Lines—so well known is the constant dependability of rotary drilling lines and other lines made by the American Steel & Wire Company. In this field—where failures are very disastrous—operators take no chances but specify the product which most users have found best. Consultation with our experienced engineers will undoubtedly uncover for you methods that will decrease your wire line costs.

1831 MORE THAN 100 YEARS of PROGRESS IN WIRE MAKING 1932

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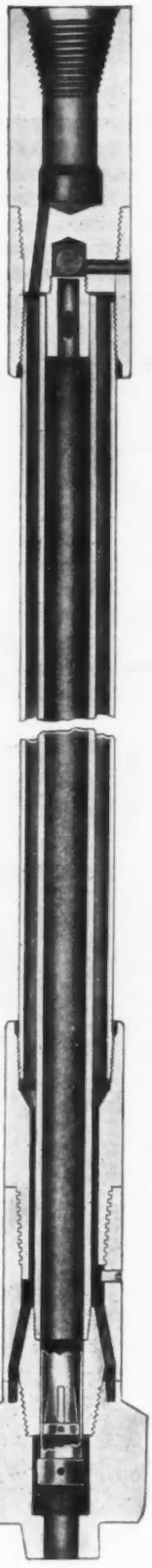

The Principle of OPERATION *is Simplicity Itself . . .*

SIMPLICITY is the keynote of efficient, modern design in practical industrial products. Brewster has always been in the lead in improving the design and workmanship of the products they offer to the public. The automatic operation of the Brewster Automatic Core Barrel consists of allowing the water to pass through the inner barrel, washing it clean, until the coring begins. Then the ports are automatically closed and the water is then directed around the inner barrel and to the Bit.

The position of the valve in the top of the barrel prevents the pressure from holding the ball down. This relieves the resistance on the inner barrel, permitting the soft sand core to enter while the vent allows the fluid and oil to pass out of the inner barrel.

This Automatic Core Barrel fills a long felt want in soft sand and other coring and assures a full recovery. This Barrel is made in all sizes and lengths. It is equipped with Split Liners as are the others—Brewster Type "C" and Type "M" Core Barrels.

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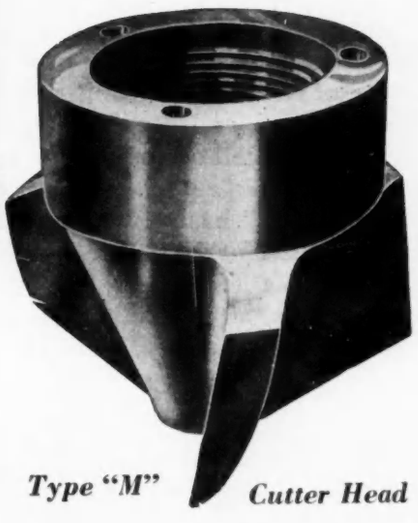
Shreveport, Louisiana

Automatic Core Barrel

Patent No. 1,505,346

By use of the Type M Bit Body ROLLER CUTTER HEADS can be used with the Perfection Core Barrel.

Barrel equipped with Roller Bit



Type "M" Cutter Head

CB-1

REG. U.S. PAT. OFF.
TONCAN
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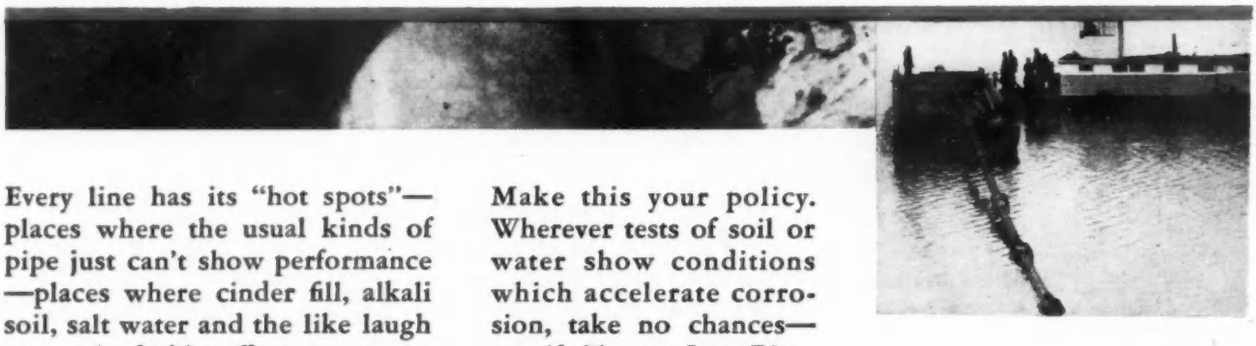
MO·LYB·DEN·UM
IRON PIPE

WHERE THE GOING IS "HOT"



Every line has its "hot spots"—places where the usual kinds of pipe just can't show performance—places where cinder fill, alkali soil, salt water and the like laugh at man's feeble effort to master them with ordinary ferrous pipe.

But there is a solution. Science has developed an alloy—Toncan Iron—of refined iron, copper and molybdenum, and Republic has developed a method for making it into electric weld pipe. This pipe in "hot spots" has shown greatly increased life for the simple reason that it ranks first among the ferrous metals, after stainless steel, in its resistance to corrosion.

Make this your policy. Wherever tests of soil or water show conditions which accelerate corrosion, take no chances—specify Toncan Iron Pipe. And for the balance of the line use Republic Electric Weld Steel Pipe. By no other means can you get a uniform life over the entire line as economically.

Two books that will interest you will be sent upon request—"Pipe for Permanence," telling the story of Toncan Iron, and Catalogue 210-B, giving complete information about Republic Electric Weld Pipe. Send for them.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

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S. W. ROBINSON
Editor

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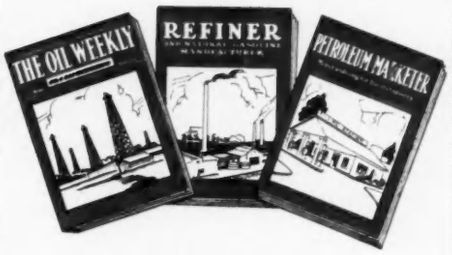

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REASONS for DE LA VERGNE SUPERIORITY

THE FRAME...

designed for maximum strength and rigidity with a minimum of weight

The frame is the backbone of the Diesel. Its duty is to withstand the thrust of firing cylinders, the vibration of whirling connecting rods, to provide adequate support for the cylinders against the angularity of connecting rods, to provide a housing for the cylinder cooling system, and to make an oil tight contact with the bedplate, forming the crankcase proper. It must do all of these things and still offer a minimum weight of metal for easy portability.

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It is cast iron, heavily ribbed in arched sections over each main bearing—built like a sky scraper to distribute stress, to provide rigidity by form of structure rather than by weight of metal.

The cylinders are seated into the two cylindrical surfaces shown in the top of the casting—well separated to provide maximum support and to relieve the cylinder bolts from side thrust due to the angularity of connecting rods.

The interior of the casting is thoroughly cleaned by chipping and sand blasting and bound with pigment as a precautionary measure to prevent the possibility of any foreign matter falling into the crank case.

The bedplate flanges are wide, forming a perfect oil-tight union with the bedplate.

Large crankcase doors and ample hand-holes provide easy access to the interior.

The cooling water header is placed in the false top ensuring against water entering the crankcase and polluting the lubricating oil.

Why not come to the oldest builder of oil engines in America for your requirements—the builder that holds records for long non-stop runs—for fuel economy at given loads—the builder that has more Diesel horsepower in oil pipe-line service than any other builder in the world. Write.

DE LA VERGNE ENGINE CO.

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DIESEL DIVISION

PHILADELPHIA, PA.

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THE OIL WEEKLY

FOR OIL AND GAS PRODUCTION AND
PIPE LINE DIVISIONS

ENGINEERING ▪ NEWS ▪ STATISTICS

The Changing Panorama

Having had little success in exposing the big stick to Russia, world oil leaders now look forward to Paris during the summer, when Roumania will be asked to do something to remove its exports from muddling the world market. Seems that those attending the recent meeting at New York went away friends, and while Soviet representatives could not be induced to control exports as suggested by the other parties, all agreed that some good had been accomplished by getting together. Page 12

Apparently the intentions of the last session of the Texas Legislature in dealing with oil matters was better than its legal advice. Its enactments are variously questioned as to constitutionality. And last week a group of gas pipe line companies gained a federal court decision that entirely cancels the "common purchaser law" which required pipe line companies to buy ratably. No oil pipe line was a party to the suit, but it was intimated that if such should seek relief from the law it is there for the asking. Page 11

Most talk about mud in recent months has been more in the lingo of the chemical laboratory than of language a man in the mud can understand. At Tulsa the talk turned more to what mud does than why it does it, which makes an article in this issue by Stanley Gill something of a relief. He and his associates on the A.P.I. Committee assigned the subject in the Coast Country find that mud does all the good things claimed for it in rotary drilling and is not as bad as some critics claim. Page 24

The annual report of the Royal Dutch Shell presents figures to show that this group has done its share in curtailing world output of oil, and criticizes Russia and Roumania for failure to cooperate. It is intimated that Shell will be in the oil business as long as any other of the present units of the industry, and Russia had best look out unless the Soviet keeps more of its oil at home. Page 13

There is an old story about the man trying to turn loose a wildcat which in a measure suggests the predicament in which operators in East Texas find themselves. Everyone is agreed that there are more wells in the area than are needed to get out the amout of oil the state says is proper. As more wells are added, need for reducing the output from each well of necessity drops. What to do about it? Page 16

Gasoline Taxes

After being in and out of the bill at various times since the Congress undertook to "balance the budget," Senate action finally left a tax of one cent per gallon on gasoline. The tariff features of the bill is calculated to add a few cents to the value of crude oil, to be reflected in the refiners' cost of producing gasoline. But the addition of one cent to the already heavy load of gasoline sales taxes is the serious situation. A recent report of the bureau of roads shows that each automobile in the United States last year contributed $20 in taxes "for roads." Regardless of local rates, the federal tax will over-ride. Already facing a loss in volume because a depression ridden population cannot continue to operate its cars, an added cent per gallon can well be calculated to withdraw many if not all of the cars which are now consuming that small portion of the total gallonage which provides a small margin of profit to an industry which has reduced its operations to parsimony. The one way open to alleviate the gasoline tax burden —and it is a most difficult way, is through the states, by inducing them to take less now that the federal government has attached this source. Based on costs then and now, the states could worry along with a lot less revenue from gasoline—or should be able to.

Summary of United States Field Operations—May, 1932

State	Month of May, 1932							Cumulative — January to May, Inclusive						
	Completions	Producers	Gas Wells	Failures	Initial Production Oil	Initial Production Gas*	Total Production†	Completions	Producers	Gas Wells	Failures	Initial Production Oil	Initial Production Gas*	Total Production†
Oklahoma	71	40	10	21	64,773	31½	13,302,550	349	175	58	117	328,607	433	64,903,200
Kansas	23	15	..	8	13,852	..	2,976,950	176	115	10	52	66,998	155	14,950,090
Texas, outside Gulf Coast	799	678	12	109	4,566,056	148½	23,514,150	3014	2512	63	439	18,124,164	963½	113,019,042
Gulf Coast	47	29	1	17	20,408	3	4,648,950	232	118	4	110	84,762	32	21,590,352
North Louisiana	14	6	1	7	2,660	7½	997,850	85	26	13	46	12,270	122¾	4,435,175
Arkansas	..	..	..	..	.....	..	1,066,450	11	2	...	9	335	...	5,202,950
Eastern States	191	85	57	49	18,311	103½	3,931,000	1100	474	351	273	40,188	1017¼	18,397,450
Mountain States	8	7	..	1	2,367	..	2,648,250	49	31	6	12	74,784	32¾	12,851,860
California	22	17	2	3	1,650	25	15,695,200	107	82	3	22	49,480	33	77,058,100
Total	1175	877	83	215	4,690,077	319	68,781,350	5123	3535	508	1080	18,781,588	2789¼	332,408,219

*Millions of cubic feet.
†Preliminary, subject to revision.

Production Drop *Continues in May Despite* Completions At High Rate

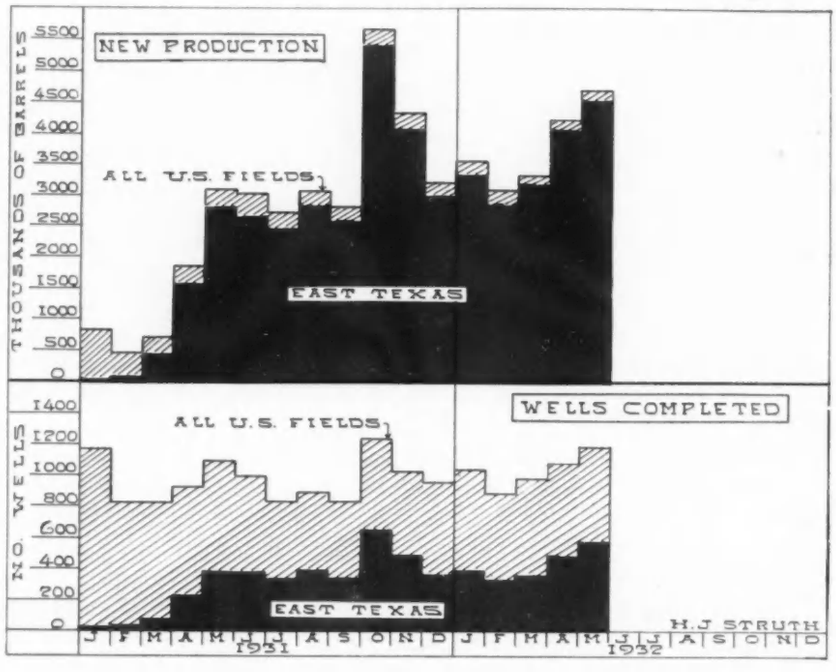
H. J. STRUTH
Staff Economist

INCREASED drilling in East Texas influenced United States field operations for May to show a substantial increase in productive wells completed. The total of producing oil wells completed in May was the highest recorded in 20 months. The completion of 877 producing oil wells in that month has not been exceeded since August, 1930, when 930 were completed. Since that date, the number of productive wells completed each month has ranged as low as 347, in March, 1931, and as high as 849 in October, 1931. In East Texas 573 out of 587 wells completed in May were oil producers, incidentally, the highest number recorded there since October, 1931, when 650 wells were completed.

Well completions in the United States during May aggregated 1175 against 1070 in April. The increase, however, was principally contributed by East Texas, where well completions increased 124 over April. The daily average number of wells completed in all fields of the United States in May was 38, against 35 in April. It is seen, therefore, that the extra day in May was a minor factor. While there has been an upward trend in field operations in areas outside of East Texas, activity has not been pronounced in view of higher oil prices. In fact, if East Texas operations were eliminated from the May statistics, the rate of development in the United States would show a decided decline.

Oklahoma reported 71 new wells in May, of which 40 were productive of oil and 10 gassers. This was an increase over April of 12 wells. Kansas reported a decrease in well completions of 14, while the Gulf Coastal districts of Texas and Louisiana showed an increase of one well completion over the total reported for April. Mountain States' well completions increased by three. All other districts recorded fewer well completions in May, compared with April. There was a substantial increase, also, in quantity of new production made available by producing wells completed in May. Oklahoma showed a gain over April of about 20,000 barrels, while Texas, outside of the Gulf Coast showed an increase of 469,000 barrels. In the Eastern States, where fewer wells were completed, initial production rose about 8000 barrels over April. This increase was due to the bringing in of nine producing wells in the Midland County, Michigan, district credited with a total initial output of 16,800 barrels. All other areas reported lower initial output.

Daily average crude production for May continued to drop, the average for the United States amounting to 2,218,753 barrels, against 2,228,597 barrels, a decrease of 9844 barrels. Despite increased drilling activity in the East Texas area, production of that field and of the state was controlled to a remarkable degree. In fact, production has been consistently within reasonable bounds since January, having ranged at a monthly total of approximately 66,000,000 to 68,000,000 barrels. Daily production of the United States was lowered still further toward the close of May, when a low point of 2,163,145 barrels was reached.



Comparative Chart of Domestic Field Developments

Texas "Common Purchaser Law" *Gas Feature Held* Unconstitutional

AUSTIN, TEXAS, JUNE 8.

THE Texas statute, known as the "Common Purchaser Act," was held unconstitutional by a court of three federal judges here June 8. The court granted an injunction sought by Texhoma Natural Gas Company, Cities Service Gas Company, North American Oil & Gas Company and Panhandle Eastern Pipe Line Company against the Railroad Commission of Texas, the Governor of Texas and the Attorney General.

Only that part of the law relating to the purchase of natural gas was passed upon by the court. The statute provides for the common purchase of oil as well as natural gas. This statute was passed by the last session of the Texas legislature. It would require pipe line concerns which provided transportation facilities for their own gas production, to buy also from other gas producers and to take no more from their own wells than from the property of producers which did not have pipe line facilities.

The court held that the plaintiff companies were private pipe line carriers and that they had not devoted their properties to the public for hire and compensation. It was pointed out that the legislature was without power to compel this and that the penalties provided were so extreme as to make the remedies at law inadequate.

The opinion pointed out that the act requires "a private carrier engaged in intrastate commerce to assume the responsibilities of a common carrier and those of a common purchaser. This invades the field of federal cognizane, interferes with and burdens commerce between the states, contrary to Article 1, Section 8 of the Federal Constitution."

After citing the fact that the plaintiff companies made contracts prior to the passing of the statute involving the developments of their own leaseholds the opinion read:

"These obligations and the requirements of the Act and the Rules are in direct conflict. To purchase and to take into their lines gas of others would impair the obligations previously incurred and destroy rights created, and in effect force plaintiffs to make new contracts of purchase from others, contrary to the contract clause of the Federal Constitution, Article 1, Section 10, and contrary to a like clause in the Constitution of the State of Texas, Article 1, Section 16."

Decisions upholding both these were listed. Another paragraph of the opinion was:

Law Cannot Fix Price

"The act directs the common purchaser to buy gas when offered for sale by others, but is silent as to the price to be paid, and all other essentials are left to conjecture. The business of dealing in gas is held not to be affected with the public interest, so that a state legislature is powerless to fix the prices at which it may be sold. Williams vs. Standard Oil Company, 278 U. S. 239, citing cases. The gas under question here is not affected with the public interest, and even so, the act burdens interstate commerce. The Texas Railroad Commission has made and published rules and regulations carrying into effect the purposes of the act. They are also attacked on the same and other grounds as are urged against the statute."

Although the decision was in regard to sections of the statute as applied to natural gas, the opinion sets out, "we are of the opinion that the mentioned sections of the act and the rules of the commission which refer to gas generally and especially to the West Panhandle gas field are void and unenforceable against the plaintiffs, as in conflict with the Federal and State Constitutions, but leave unaffected as not in issue the act and rules regulatory of oil or petroleum."

Government Wells Coming Under Proration Rules

Austin, Texas.—Orders governing the Government Wells field, Duval County, and other South Texas fields will be issued by the Texas Railroad Commission during the coming week.

Delay in the preparation of these orders has been due to the difficulty of dealing with the gas problem. W. F. Knode, commission engineer, has spent most of the last two weeks in the area, attempting to determine proper gas-oil ratios.

Over Production *at Oklahoma City* *Substantially* Reduced in May

OKLAHOMA City.—According to figures released by the umpire's office a very healthy condition exists in the Oklahoma City pool. Not many months ago those responsible for the enforcement of proration regulations were faced with a huge underproduction which was a severe handicap. This was preceded by a period during which working tankage of many operators was full and underproduction accumulated rapidly due to the fact that allowables could not be taken when they were due. The report of June 1 shows that during May pipe line runs exceeded production by 65,577 barrels, runs having totaled 3,230,910 barrels and production 3,165,333 barrels. Net allowable for May was 3,117,078 barrels, 48,255 barrels less than actual production.

As of May 1 total overage was 506,344 barrels and total underage was 404,839 barrels, giving a net overproduction of 101,505 barrels. On June 1 these figures had been changed to 523,588 barrels overproduction and 475,333 barrels underproduction, giving a net overproduction of only 48,255 barrels.

Stocks as of May 1 totaled 607,885 barrels and as of June 1, 542,072 barrels, or a decrease of 65,813 barrels. Present stocks are but little more than tank bottoms and the field is in exceptionally good shape to take its allowable in an orderly manner. This condition has been brought about by close cooperation between the umpire and operators as well as the purchasing companies.

World Oil Leaders *Will Meet At Paris to* Further Control

Roumania Will Participate In Meeting Instead of Russia When Effort Will Be Continued For Stabilization

NEW YORK, JUNE 10.

INDICATIONS now point to further conferences that may result in curtailment of world oil production and restriction of markets. Failure of the conference between British American and Russian oil interests in New York last week is not accepted as the last of the efforts to bring about balance between oil production and oil consumption.

One indication is the coming conference in Paris to be called late in June. The conference will be for the purpose of seeking a cooperative basis for the stabilization of Roumanian exports. Interests identical with those represented at the New York conference will be in Paris, except that the Russian delegates will be supplanted by those from Roumania. Essentially the same propositions considered at New York will come before the Paris conference.

See Benefits From Conference

Last week J. B. Aug. Kessler of the Royal Dutch Shell group said that the New York conference had not been without benefit despite failure to reach an agreement. Russian delegates issued a statement of identical nature, as follows:

"On leaving the United States to return to the Soviet Union, we desire to express our satisfaction with the manner in which the international oil conference was conducted. In spite of the fact that the comprehensive discussions yielded no definite agreement for stabilizing the world petroleum export market, we believe that some progress has been made.

"It was difficult to expect that questions in which so many countries, companies and different interests were involved could be satisfactorily decided at the first conference. The difficulties were all the greater because of the fact that the conference took place after many years of intensive competition and struggle in the world markets. Nevertheless, the conference made a marked advance toward a better understanding among the companies and interests involved. Many complicated questions were analyzed and clarified and this may open the way for further discussions to more positive results.

"We are greatly appreciative of the many courtesies shown us in the United States."

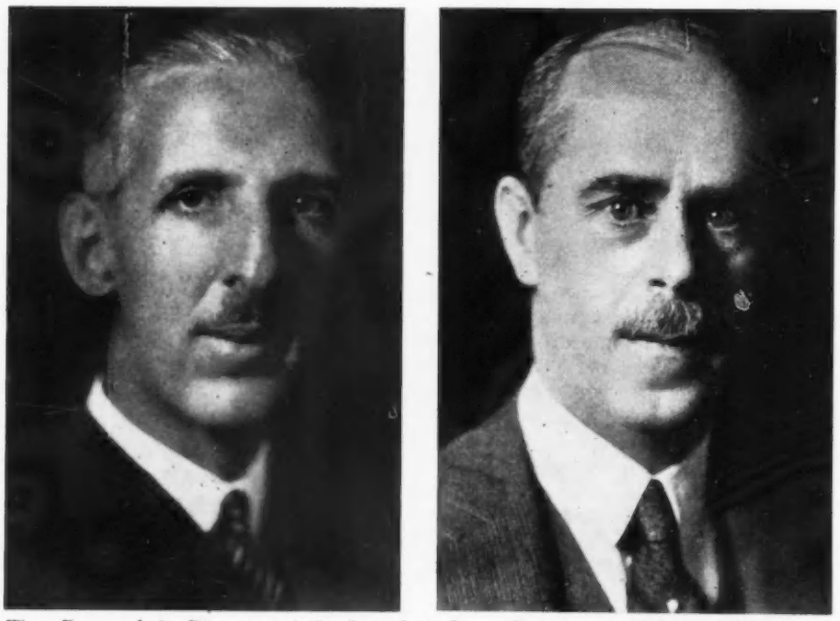
Soviet Not Willing to Curb

Although no information has been given on the points at which the conference could not agree, it is generally understood that failure hinged on points relating to continued expansion of oil exports as proposed by the Soviets, which contrasted with the opinion which prevailed among American and European groups, who held that oil denied to the Russian people should not be forced upon external markets already over supplied from other sources.

American and European companies participating are thought to have been willing to undertake the purchase of surplus Russian oils within certain limits; but that they refused to accept a reservation demanded by the Soviets, who sought to retain liberty of action in marketing additional exports independently and in competition. Such would have been only a continuation of present conditions.

With the Roumanian conference to come and some of the delegates at the New York conference apparently willing to go into further deliberations, the prospect is for continued efforts to settle world oil markets.

Foreign Executives Back to Europe



Wm. Fraser, left, Director of the Iraq Petroleum Company and Deputy Chairman of the Anglo Persian Oil Company and R. I. Watson, right, Managing Director of the Burma Oil Company and a Director of the Anglo Persian and Shell Trading Company, who have sailed for England after the unsuccessful conference in New York.

Political Angle Crops Up In "Allred Ouster Suit"

Austin, Texas. — Hearing on bills of exception in the Allred "ouster" suit has continued throughout the past week before Judge J. D. Moore in the 98th district court.

Exceptions presented by Humble Oil & Refining Company have required most of the time, although each of the 16 other defendants have been granted the right to present their protests on each point.

About 40 of the 80 paragraphs in the state's amended petition have been heard, and it is expected that at least another week will be required to discuss the rest.

Charges of "political spellbinding" have been bandied about the court room, each side charging the other with attempting to bring the suit into the present political mixup.

There was no indication that further evidence in the suit would be heard any time soon. Only one witness, R. C. Holmes, president of The Texas Corporation, has been placed on the stand up to the present time.

Shell Statement *Defies Rumors and* Threatens Soviet *With Iraq*

NEW YORK, JUNE 8.

THE annual report of Sir Henri Deterding, general managing director, and J. E. F. de Kok and J. B. Aug. Kessler, managing directors, to the board of commissaries of the Royal Dutch Company contains a ringing challenge to rumormongers and a pointed threat to the Soviets.

"We have *f*343,000,000 (approximately $137,886,000) in cash and 10,000,000 tons (roughly 70,000,000 barrels) of petroleum and refined products," said they, in effect; "and we expect to be in at the finish."

Their exact words are, "No matter how long the present crisis may continue, we shall, therefore, be in a position to hold our own as long as any other petroleum company."

Soviets are warned in unmistakable terms that a fresh supply of low-cost oil from Iraq will be brought into consideration within the next year or two, and that "the Iraq Petroleum Company . . . will seek a market in those countries for which their supplies are geographically suited, and which market will lie in and around the Mediterranean seaboard,"—where Russian exports are now being sold.

The report also contains a promise to the industry of early relief from the pressure of Russian petroleum exports.

"It can safely be assumed that a policy of home starvation is one which cannot be indefinitely pursued, and it is rapidly coming to an end; we, in fact, go so far as to say that a normal Russia industrialized as its ambition points would require for its own population even more in the way of petroleum products than Russia herself can produce, even under the best conditions as might be worked on the known oil reserves at her disposal." . . .

"In studying these figures (relating to a 100 per cent increase in Russian oil production since 1928), it should by no means be assumed that the increasing production in Russia is uneconomic or even unnecessary; the uneconomic factor lies rather in the way of the unnecessary and unwanted exports which have been made from Russia whilst at the same time internal requirements of that country have not even apparently been provided for. The latest official Soviet figures for home consumption show that with Russia working feverishly on its 'Five-Year-Plan' the petroleum requirements of that country are increasing enormously. . . . "

Figures reflecting the world-wide production situation during 1931 were incorporated in the report, and increases were noted in Roumania and Persia; but it was made plain that "the outstanding instance of increased quantities lies with Russia; in all other oil-producing countries the restriction policy has been followed during the year under review, and notwithstanding Russia's attitude the world's production of crude oil has been reduced in 1931 by about 10,100,000 metric tons (approximately 70,700,000 barrels).

Credit was taken on behalf of the Royal Dutch Shell Group for approximately 34 per cent of this total reduction in world output, although increases of eight per cent in crude production and 40 per cent in refinery throughput were admitted in Roumania. The following figures were developed for purposes of comparison by consolidation of the annual reports for 1930 and 1931.

Country or Colony, and Principal Operating Subsidiary	1931	1930 (Metric Tons)	1929
DUTCH EAST INDIES			
Bataafsche Petroleum Maatschappij			
Sumatra	935,799	1,348,892	1,138,068
Borneo (excluding Tarakan)	1,307,471	1,562,741	1,621,626
Tarakan (Borneo)	731,193	1,057,808	1,171,700
Java	518,739	557,079	620,988
Ceram	42,128	47,657	45,172
Nederlandsch Indische Aardolie Maatschappij			
Djambi fields	220,962	186,434	126,629
Aroebaai fields	50,288	39,797	22,243
Boenjoe	5,322	6,232	.....
Sub-total	3,811,902	4,806,640	4,746,426
SARAWAK			
Sarawak Oilfields, Ltd.	535,178	701,518	760,166
EGYPT			
Anglo-Egyptian Oilfields, Ltd.	284,859	281,997	271,520
ROUMANIA			
Astra Romana Societe Anonyme	1,119,636	1,034,042	852,372
MEXICO			
Compania Mexicana de Petroleo "El Aguila," S. A.	1,731,250	1,838,007	2,052,925
VENEZUELA			
Caribbean Petroleum Company	1,775,316	3,072,084	2,330,341
The Venezuelan Oil Concessions, Ltd.	4,898,792	5,878,186	6,469,206
Colon Oil Corporation	1,028,500	705,261	.....
TRINIDAD, BRITISH WEST INDIES			
United British Oilfields of Trinidad, Ltd.	162,844	128,240	102,800
UNITED STATES			
Shell Petroleum Corporation	2,707,519	2,873,908	3,602,835
Shell Oil Company	2,229,156	2,650,164	3,980,717
ARGENTINA			
Diadema Argentina Sociedad Anonima de Petroleo, and subsidiaries	247,806	9,980	15,079
Grand Total, Metric Tons	20,532,758	23,980,027	25,184,387
(Barrels)	143,729,306	167,860,189	176,290,709

Thus it appears that the crude oil production of the Royal Dutch-Shell Group has been reduced by almost one-fifth since 1929.

"These figures demonstrate that again in the past year our group has taken a leading part in the attempts to restrict production and that it has done its full share in preventing the reserves being drawn upon. Otherwise our production might have been about twice as much.

"The reduction was again not solely due to the shutting-in and pinching of producing wells, but was also a result of further curtailment of drilling, which has led to the exploitation expenses being much lower than in 1930. It is just the fact that too many wells are drilled that often causes an oilfield not to yield its potential production, and the result of such methods is not only that the world benefits for only a short time from a field which otherwise might have served for a number of years, but in consequence of too many wells being drilled a part of the oil is lost before it reaches the surface . . ."

In common with virtually every utterance from this source during recent years, the report contains also a plea for international cooperation. "The explanation of this deplorable state of affairs is to be sought in the total lack of international cooperation, as a result of which every national community is becoming more and more an isolated unit."

Profits and Losses

The net profit for the year 1931 was reported as *f*27,916,648.36 (approximately $11,222,493.64); and it was proposed by the board of commissaries, "that the divi-

dend for 1931—after paying four per cent on the preference shares—be declared at six per cent on the ordinary share capital of *f*503,624,000.—outstanding per 31st December, 1931; . . ."

The profit and loss account contains an item of *f*3,111,753.38 (approximately $1,250,924.86) debited "To loss on exchange on our claims in sterling and dollars, these claims being valued at the rate of exchange per 31st December, 1931."

It was explained, however, that the sterling holding of the Royal Dutch Company itself is not large, it having amounted, in round figures, to £800,000 as of December 31, 1931. Of the loss above mentioned, *f*2,900,000 approximately $1,165,800) resulted from this holding. However, "Since the closing of our accounts our holding in sterling has been increased to some £4,000,000 by purchasing at rates lower than that at which the £800,000 was originally bought, and if we were now to sell these pounds the aforementioned loss would be practically recovered."

Cash reserves as of December 31 included $41,390,000 in U. S. dollars, of which $36,750,000 was held by Shell Union. The total of florins, dollars, pounds, and other currencies was calculated as equivalent to approximately $137,886,000.

The consequences of Great Britain's having abandoned the gold standard were admitted in connection with the accounts of the Bataafsche Petroleum Maatschappij, a major operating subsidiary.

"For many years past the Bataafsche has been furnishing the Anglo-Saxon Petroleum Company, Ltd., and the Asiatic Petroleum Company, Ltd., with funds, in the first place for the acquisition of fixed assets such as ships, installations, buildings, etc., and also for the purchase of petroleum products, the payment of freights, and for financing the distributing organization in general.

"Insofar as the fixed assets are concerned, there is not really any loss, since these still represent their full value for us, but the position as regards the purchase of products, etc., is different and the Bataafsche has not, therefore, hesitated to write down these claims in sterling to their value as at 31st December, 1931, *i. e.*, at florins 8.48½ to the pound. The loss suffered by the Bataafsche on this account amounts, in a round sum, to *f*46,000,000 (approximately $18,492,000).

"For the rest our well-tried conservative policy has been followed in writing off depreciation on the same basis as before and in valuing stocks well below their market value as at 31st December.

"Reserves having been formed in times of plenty upon which to draw in times of adversity, it would not be equitable to charge the whole of the above mentioned loss of *f*46,000,000—to the profit and loss account for 1931. It has been deemed judicious to book *f*35,000,000—direct as a loss and to draw on the reserve to the extent of *f*11,000,000—whilst the intention is that should the sterling rate on Holland recover the resulting benefit is to be applied to raise the reserve again to its former level. Otherwise there has been no need to call upon our various reserves, so that, except for this reduction of *f*11,000,000—they are still as strong as before.

"By adhering to such a policy we feel that the shareholders can be set quite at ease as regards the financial position of our group. Further, we wish to point out that our participations in other companies, taken as a whole, are shown in the books below their market or selling value as at 31st December, 1931."

Retrenchment

"The energetic attempts, begun early in 1930, to cut down expenditures, were continued also in the past year, with the result that we have been able to realize the expectations, expressed in our previous report, that in 1931 expenditure in the Indies could be reduced to two-thirds of that of the preceding year.

"With the starting up of the tank-gas-treating plant at Pangkalan Brandan and the new sulphuric acid factory at Balikpapan, the programme for new construction has been completed for the time being, as far as expensive objects are concerned.

"An appreciable saving has also been effected in the purchasing of new material by exchanging surplus stocks between the various centers. This, combined with the curtailment of the working and new construction programmes, has resulted in a reduction of the amount required for new material from about *f*34,000,000.—(approximately $13,668,000) in 1930 to about *f*7,000,000—(approximately $2,814,000) in 1931."

Operations In the United States

"This production (approximately 34,556,725 barrels in the United States) is far less than the potential production, our companies again having cooperated to the fullest extent in carrying out the conservation measures prescribed by the respective public bodies. In order to provide the refineries with their crude oil requirements the production was supplemented by local purchases.

"Much was also achieved in the direction of conservation by restricting the drilling programmes as much as possible, especially in California and Oklahoma, although owing to the unrestrained drilling activity of competitors in East Texas and elsewhere the Shell Petroleum Corporation was forced to take uneconomical action. . . .

"Notwithstanding the restriction of drilling activities already mentioned, the crude oil reserves of the Shell Union Oil Corporation's companies were very considerably increased; first of all in California by the discovery of deeper prolific oil zones in the Dominguez and Ventura fields and further by the completion of two flowing wells with a large production of gas and oil in the Kettleman North Dome field, the results of these two wells clearly indicating the great value of this field. In December last the Shell Oil succeeded by purchase in further extending their interests in this field.

"Also in Texas (i. e. East Texas), Louisiana (Gulf Coast) and Kansas, thanks to the results of exploitation work in those states, the oil reserves were considerably increased. . . .

"It goes without saying that the abnormally low prices have had a very adverse effect upon the financial results of the companies forming the Shell Union Corporation group, but the economy campaign begun early in 1930 has been pursued energetically in the past year and the very conservative amortization policy hitherto applied has been maintained unmodified. It is not only as a result of these economies that the cash position has been considerably strengthened, but also and particularly on account of capital expenditure having been restricted to the utmost.

"Nevertheless it could not be prevented that the surplus account of undistributed profits was not only entirely absorbed by the loss suffered but was turned into a deficit, with the result that no dividend could be declared on the ordinary Shell Union Oil Corporation stock and also the payment of dividend on their 5½ per cent cumulative preference shares could not be continued after the first and second quarters of 1931."

Anti-Trust Laws

"Under present circumstances the anti-trust laws in force . . . constitute a serious hindrance for a sound economic development of various branches of the oil industry. In this connection mention may be made here of steps that have been taken towards securing an amendment of these laws. Representatives of the oil-producing states in the union have formed an Oil States Advisory committee with the object of considering and recommending changes in the laws of the various states and means for cooperation in a program of rational development of the oil fields of the U. S. A. The committee is working upon a plan for federal legislation to permit an interstate compact under which the signatory states would regulate their crude oil production according to a uniform scheme; the plan has the approval of the federal government."

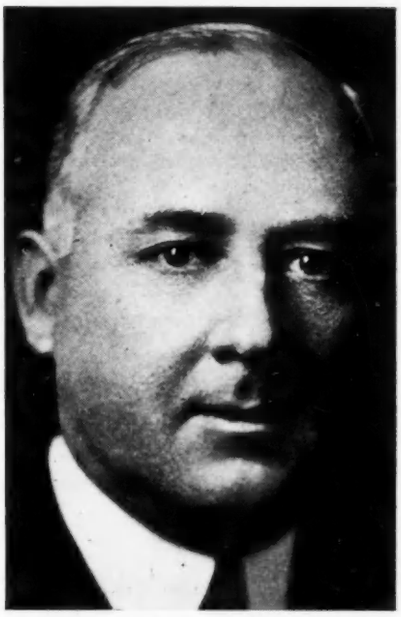
MEN IN THE INDUSTRY'S NEWS

CLARK H. KOUNTZ

Recently Made Chairman Sinclair-Prairie Pipe Line Company, Independence, Kansas.

Getting his start in the oil business as messenger boy for the Ohio Oil Company at Findlay in 1901, Mr. Kountz joined the old Prairie organization in June, 1905, as secretary to James E. O'Neil then president.

When the Prairie Pipe Line Company was organized in 1915 he was elected vice-president, which position he held until the merger of the Prairie and Sinclair interests this year.



CLARK H. KOUNTZ

JOHN R. SUMAN, director of production for Humble Oil & Refining Company, subsidiary of Standard Oil Company of New Jersey, heads a party composed of W. W. Scott, chief engineer of Humble Oil & Refining Company; E. L. Easterbrook, chief engineer of Pan American Petroleum and Transport Company, and Harry Hill, Standard Oil Company of New Jersey, which left New York June 8 aboard the tanker Pan Bolivar for Venezuela, where the party will inspect Pan American Petroleum and Transport Company properties recently purchased by Standard Oil Company of New Jersey.

W. R. BENDER, of Burma Oil Company, recently arrived in California and is spending his vacation at Ventura. He has spent some time in the fields of Burma.

SCOTT TURNER, director of the United States Bureau of Mines, and president of the American Institute of Mining and Metallurgical Engineers, received the honorary degree of Doctor of Engineering from the Michigan College of Mines, on June 2. He delivered the graduation address to the outgoing class, at Houghton, on the same day.

R. A. BROOMFIELD, president of Barnsdall Oil Company, will return to Los Angeles around the middle of June, following an extended Mid-Continent trip.

S. L. GILLAN, consulting geologist of Los Angeles, is expected to return to California some time in June, after a trip around the world. He was accompanied by Mrs. Gillan.

H. W. PULLMAN, driller for Burma Oil Company in the Chauk field, Burma, is spending several weeks in California.

ROY E. COLLOM, general manager of Continental Oil Company in California, R. A. Sperry, of General Petroleum Corporation of California, and C. P. Watson, of Milham Exploration Company, recently made a tour of inspection of Kettleman Hills in connection with the state suit against operators under the gas waste act. These men are also members of the executive committee of the Kettleman North Dome Association.

GRADY KIRBY, who has been divisional geologist for Sinclair Prairie Oil Company in the Gulf Coast region with headquarters in Houston, has been transferred to San Antonio, where he will be in charge of geological work for the company in South Texas. Although he has moved his residence to San Antonio, he will also spend part of his time in the Houston district keeping in touch with developments in the salt dome region. The company heretofore has not had a similar representative at San Antonio.

V. R. BROGDEN, International Petroleum Company, Talara, Peru, is visiting relatives in Houston.

BART A. MYERS, general manager of the production department of Tropical Oil Company, with headquarters at El Centro, Colombia, is in the United States and attended the A.P.I. meeting in Tulsa last week.

W. B. HEROY of New York, vice-president and chief geologist of Venezuela Exploration Company, a subsidiary of Consolidated Oil Corporation, was in Houston last week.

K. R. KINGSBURY, president of Standard Oil Company of California, has been appointed chairman of the Credits Committee for the Twelfth Federal Reserve Bank District, with headquarters at San Francisco. The committee will endeavor to promote cooperation between the bankers and industry to facilitate and expand the use of credit.

A. NORCOTT, field manager of the International Petroleum Company at Negritos, Peru, is a visitor in the states.

V. E. COTTINGHAM, deputy supervisor for the oil and gas division of the Texas Railroad Commission on duty in the East Texas oil field since his appointment last September, has been transferred to his former home at San Angelo to assume charge of a West Texas district formerly covered by Supervisor J. A. Morehouse, who is to do a tour of duty in East Texas. Cottingham was a consulting geologist before entering the conservation service.

F. W. LEITE, president of Westland Petroleum Corporation of Los Angeles, is looking over properties in New Mexico.

J. P. BERKIN, engineer for Shell interests at Sarawak, Borneo, is studying production methods in California.

L. B. O'NEIL, Montana and California operator, and Irvine E. Stewart, well known consulting geologist of Los Angeles and Great Falls, Montana, recently visited the Hoh River district in Jefferson County, Washington.

R. C. HOLMES, president of The Texas Company, left Los Angeles recently for the East after spending some time in California.

DUDLEY M. STEELE, director of aviation for Richfield Oil Company of California, cracked up his plane at Reno, Nevada, May 28, while on a cross-country goodwill mission boosting the Tenth Olympiad to be held this summer in Los Angeles. Neither Steele nor his wife, who was accompanying him, was injured, but the plane was badly damaged.

E. R. PITCHER, district superintendent in the Cushing district for The Texas Company, died May 28, following an operation in a Tulsa hospital. He was 61 years old and had been with The Texas Company since 1915. On February 1, 1924, he was made superintendent of the Cushing district with headquarters in Drumright, where he has been active in the affairs of the Drumright Chapter, American Petroleum Institute and in civic work. He acted as chairman of the chapter during 1931 and had been one of the directors for several years.

Urge Curtailed Drilling *to Hold Up Well Average in* East Texas

DALLAS, TEXAS, JUNE 9.

A RENEWED attempt to throttle unnecessary drilling in East Texas as a means of forestalling a reduction of the proration allowance per well below 50 barrels daily was launched here June 8 under the auspices of the Texas Oil & Gas Conservation Association. A group of representatives of major and independent lease owners in the field signified willingness to cooperate in curbing development, but no definite measure was agreed upon.

Chas. F. Roeser, Fort Worth independent with extensive holdings in the field, and president of the Association, submitted figures to show that $91,830,000 will be spent for drilling should the 12 leading lease owners persist in drilling their properties to an average density of one well to 20 acres, and the remainder drill an average of one well to 15 acres. In the face of this expenditure there is no indication that the market outlet for the field will advance above its present level of 325,000 barrels daily.

The 12 leading concerns control 62,699.17 acres, or 58.32 per cent, and on the date of the survey had completed 2733 wells, or 47.65 per cent of the aggregate, with an average of 22.94 acres per well. These companies will be required to increase their completions to 3135 to arrive at an average of one well to 20 acres, but in doing so will boost well investment to $47,025,000, based on an estimated cost of $15,000 each. The miscellaneous group of property owners are credited with 44,812.25 acres, or 41.68 per cent, and had drilled an average of one well to each 14.93 acres. When the average of one well to 15 acres was attained cost was calculated at $44,805,000. Should this group continue to drill until the average is one well to 10 acres, the additional cost will be $22,410,000, while the dozen majors will be expending an additional $47,025,000 in the event they bring their average down to one well to 10 acres. The miscellaneous group will suffer a lost of 23,113 barrels in daily allowable in the event of such a race, while the larger units would be spending $47,025,000 to gain such a volume in the field's allowable of 325,000 barrels daily. Should the allowable remain constant and the field be drilled to a uniform density of one well to 10 acres the well quota will be only 30.2297 barrels daily.

The largest single property owner in the field is confronted with the possibility of spending $11,025,000 in attaining an average of one well to 20 acres, having drilled 612 wells on 14,693.71 acres, or an average of one producer to 24.01 acres at the time of the survey. Should the field be drilled out to an average of one well to 10 acres this same company will spend an additional $11,010,000, and in return would boost its allowable by 5,389 barrels.

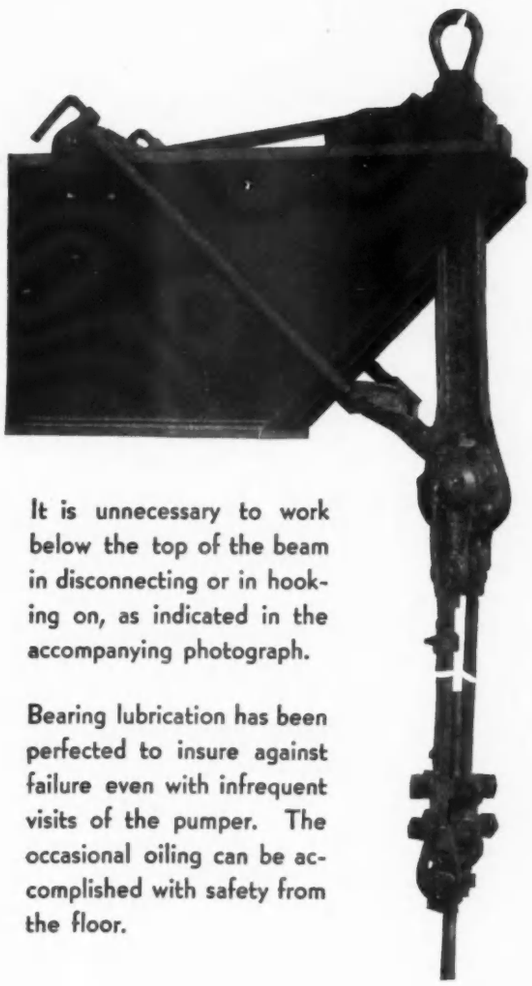
An appeal to the independents is to be made by the East Texas Oil Club, which is headed by H. L. Hunt, Tyler operator, for their support in checking all unnecessary drilling, as a matter of protection for all concerned against the investment of more than can be economically recovered.

Operators that persist in sub-dividing small tracts in order to sell off drilling sites are now the principal sources of unnecessary drilling, according to Roeser. It is pointed out that the Railroad Commission's rules specifically forbid such splitting up practices, but that the enforcement is lax, and it is a common occurance for five, ten and twenty acre tracts to be split into two to five pieces to be drilled separately, thus causing numerous offsets. Suggestion was advanced that injunctions be applied for to restrain such sub-divisions as a relief measure.

A. I. M. E. Section Meets At Tulsa on June 13

Tulsa.—The Mid-Continent Section, American Institute of Mining and Metallurgical Engineers will hold its next regular meeting at 8:00 p. m., on Monday, June 13, at the University Club, Tulsa. Papers for the evening will include: "Estimation of Reserves in Fields Under Proration," by H. C. George, director of the School of Petroleum Engineering, University of Oklahoma; and "Economics of Repressuring Stripper Wells," by James O. Lewis of the firm Dunn and Lewis. In addition, E. H. Griswold, petroleum engineer for Continental Oil Company, Ponca City, will read a paper regarding the position of the engineer in the petroleum industry.

NATIONAL BEAM HANGER TYPE F



It is unnecessary to work below the top of the beam in disconnecting or in hooking on, as indicated in the accompanying photograph.

Bearing lubrication has been perfected to insure against failure even with infrequent visits of the pumper. The occasional oiling can be accomplished with safety from the floor.

The Type F Beam Hanger comprises a complete connection between the walking beam and polished rod. It supplies an improved bearing connection, minimizes deviation from a straight lift, and furnishes a connection which can be moved readily to clear the well for pulling operations.

This hanger has the exclusive feature of locating entirely from the level top surface of the beam which is the only surface common to practically all makes and sizes of beams.

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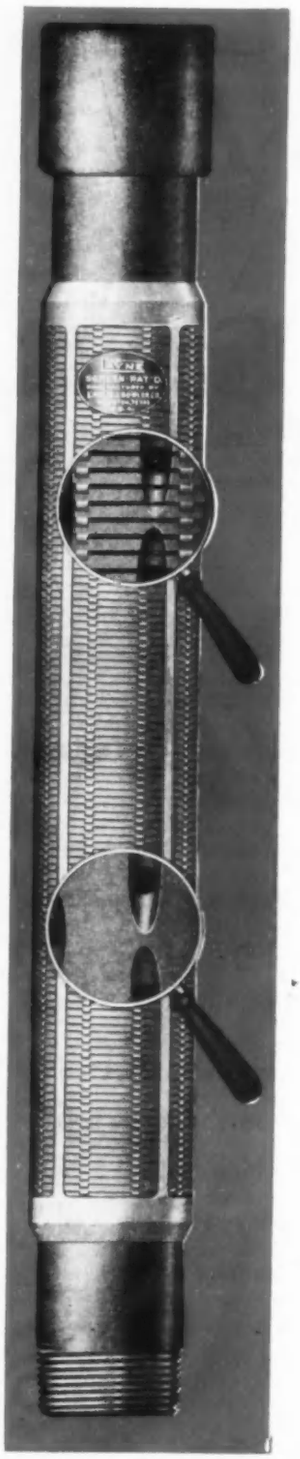
THE NATIONAL SUPPLY COMPANIES



New 1200 Barrel Conroe Well

comes in through

THE LAYNE

MILLED GROOVE SCREEN

Strake Oil Corp.'s No. 2, near Conroe in Montgomery County, Texas, was brought in last Sunday at 5152 feet, through one joint of 5 3/16" LAYNE Bronze Wire Milled Groove Screen. In the first 15 minutes the well flowed through a 3/4" choke and quickly built up to 1200 bbls. a day through a 3/8" choke. It had an initial gas volume of 12 to 14 million cubic feet.

In using the LAYNE Milled Groove Screen the owners took advantage of:

—Individual Cushion effect of the milled grooves.
—Individual hole choke to eliminate cutting.
—Equalized pressure.
—Increased inlet area.
—Efficient separation.
—Greater satisfaction.

REMEMBER—To install the LAYNE Milled Groove Screen means the end of your screening problems.

The Layne & Bowler Co.

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THE LAYNE

MILLED GROOVE SCREEN

MARKETS ~ STATISTICS

Rush to Beat Federal Gasoline Tax Brings Refiners Healthy Demand Which Adds Nominal Strength to Gasoline. Crude Production, Still Runs and Gasoline Stocks Lower.

H. J. STRUTH, ***Staff Economist, Houston, Texas***

Gasoline Market Higher On Good Demand

SHIPMENTS of gasoline from various refining centers have become more brisk during the past week as a result of increased buying from jobber sources. Some refiners lay the increase in business principally to the prospective imposition of a one-cent federal gasoline tax, expected to be placed in force about June 21. With jobbers' stocks of gasoline presumed to be at a low ebb, it is logical to believe that the movement toward increased gasoline purchases is prompted by efforts to beat the tax date by stocking up in advance. Obviously, this will result in some record-breaking shipments of gasoline during the next 10 days and should have a beneficial influence upon the wholesale price structure. The federal tax will be collected at the refinery.

Some refiners have already boosted their gasoline prices fractionally and there is reason to believe that the movement toward a higher price level will be more or less general.

What effect the imposition of the federal gasoline tax will have upon the gasoline market is as yet problematical. That gasoline shipments will fall off materially for a few weeks following June 21 is to be expected, particularly if shipments continue to increase between now and that date. Yet, the upturn in current demand will perhaps offset any slump that may immediately follow the temporary spurt in buying. If events prove this theory correct, refiners are in a position to strengthen the market by holding runs to a minimum. An increase in operations at this time would undoubtedly be detrimental to the gasoline market later on. The time also seems propitious to transfer stocks from refineries to bulk stations and it is believed that such procedure is not being neglected by companies so situated as to make stock transfers possible.

The crude market has shown no change anywhere but indications point to an early advance in California postings. Production in California has been brought down close to the allowable figure and talk of an incentive in the form of a price advance has become rather general. There is reason to believe that an advance in posted prices in California would be sustained by reason of the fact that it would be regarded in the light of a reward for the success of curtailment efforts. At any rate, any upturn in production following an advance in posted prices would undoubtedly bring a subsequent reduction. With crude production being held well within the limits prescribed by demand, the general crude market is strong.

Production Trend Continues Downward

PRODUCTION of crude was further reduced last week when the daily average of the United States amounted to 2,173,812 barrels, compared with 2,184,397 barrels in the preceding week. The decline of 11,000 barrels was influenced principally by Texas, where output dropped to the extent of about 18,000 barrels a day. Oklahoma and California reported increases last week which offset the drop in Texas' production to some extent. Comparison of last week's crude production with current market requirements shows that Texas, Oklahoma and California are holding production in line with proration schedules to a remarkable degree. In fact, production of these states is either below or only slightly above allowables and indicated current rates of demand insure substantial withdrawals from storage.

THE OIL WEEKLY
Estimated Daily Average Production
Week Ending June 11, 1932

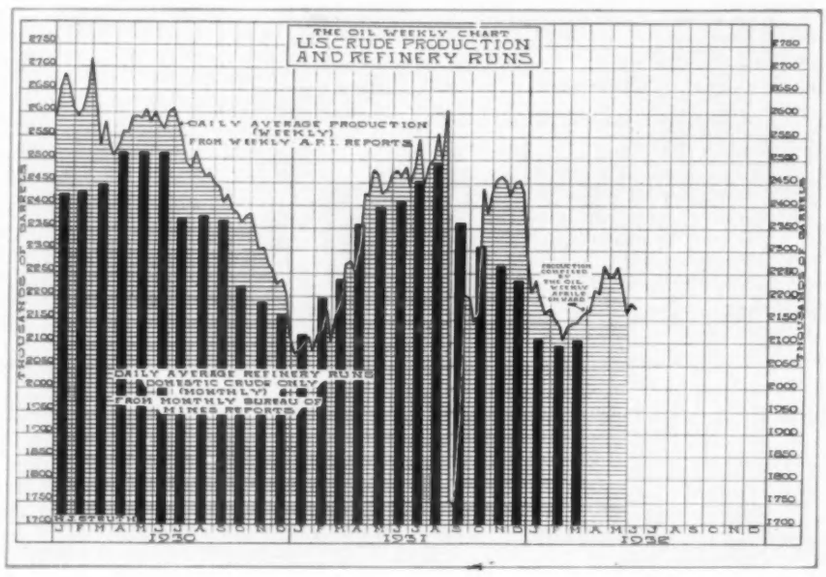
	For Week Ending June 11	June 4
Texas Panhandle	54,420	51,650
North and West Central Texas	73,150	74,675
West Texas	176,075	181,200
East Central Texas	57,112	56,650
East Texas	347,000	346,000
Southwest Texas	42,490	57,640
Total Texas, Outside of Gulf Coast	750,247	767,815
Texas Gulf Coast	113,300	113,400
Total Texas	863,547	881,215
Oklahoma City	97,000	81,000
Seminole	135,000	141,985
Other Oklahoma	192,500	191,515
Total Oklahoma	424,500	414,500
Ritz-Decker	12,250	12,240
Voshell	5,600	6,530
Other Kansas	77,000	77,025
Total Kansas	94,850	95,975
North Louisiana	28,025	28,052
Louisiana Gulf Coast	32,800	33,600
Total Louisiana	60,825	61,652
Arkansas	33,925	34,300
Long Beach	75,500	76,500
Santa Fe Springs	61,000	61,000
Midway-Sunset	50,000	49,000
Kettleman Hills	61,000	60,000
Other California	237,500	237,000
Total California	485,000	483,500
Wyoming	37,880	38,210
Montana	7,570	8,640
Colorado	3,170	3,310
New Mexico	34,945	35,645
Total Mountain States	83,565	85,805
Eastern States*	127,600	127,450
Total United States	2,173,812	2,184,397

*Includes Michigan.

Texas reported a combined daily average production last week of 863,547 barrels, compared with 881,215 barrels in the preceding week. The drop of nearly 18,000 barrels a day was contributed by decreased output of West Texas and Southwest Texas. Panhandle, production increased to the extent of about 3000 barrels a day, mounting to a daily average of 54,420 barrels. Practically all other districts of the state showed but little change in production from the preceding week. East Texas production was maintained at 347,000 barrels, against 346,000 barrels in the preceding week. Gulf Coast production was at about the same level as in the preceding week; 113,300 barrels.

The increase in production of Oklahoma was in keeping with state proration requirements, since averages for the past two weeks have been somewhat below allowable production. Oklahoma City output increased about 16,000 to a daily average of 97,000 barrels. This is within the allowable set for June. Seminole dropped about 7000 barrels to 135,000 barrels. This is also within the allowable. Kansas reported a further slight decline in production last week, the state total amounting to 94,850 barrels a day, compared with 95,975 barrels in the preceding week.

Midway-Sunset and Kettleman Hills, California, fields reported slightly higher rates of production last week, boosting the state output to the extent of about 2000 barrels. Daily average production for California is reported at 485,000 barrels, against 483,500 barrels


THE OIL WEEKLY CHART
U.S. CRUDE PRODUCTION AND REFINERY RUNS
DAILY AVERAGE PRODUCTION (WEEKLY) FROM WEEKLY A.P.I. REPORTS
DAILY AVERAGE REFINERY RUNS DOMESTIC CRUDE ONLY (MONTHLY) FROM MONTHLY BUREAU OF MINES REPORTS
THOUSANDS OF BARRELS
1930
1931
1932

in the preceding week. Daily averages for last Friday and Saturday, however, were somewhat lower and estimates place state output at the close of the week at a daily average of not more than 480,000 barrels. This indicates that efforts to reduce output of the state to the new allowable figure may shortly prove successful. Of some influence to the determined effort of operators to reduce output in California is the prevalent belief that attainment of the desired production level will be met with an advance in crude prices. This is considered a likely event in the very near future and may materialize within the next week.

To Go Lower

That even lower production may be expected in the United States in the near future is indicated by the policy of many large purchasing companies to withdraw a substantial part of their crude requirements from storage. This is reducing nominations to a considerable extent and has perhaps been the chief reason why allowable figures have not been subjected to an upward revision.

If the proposal of the Oil States Advisory Committee is generally adopted, the daily allowable of the United States will probably be cut to about 2,136,000 barrels. Yet, the aspects of curtailment to prevent physical waste may prevent realization of that objective. It is generally conceded that it will be difficult to reduce production of Texas and California much below present allowables.

Pennsylvania Association At Bradford June 24

Oil City, Pennsylvania.—Pennsylvania Grade Crude Oil Association will hold its annual meeting at Bradford, Pennsylvania, June 24, according to Harvey Willson, acting secretary. In addition to routine business and the election of officers and directors, Vice President Dow will give an informal talk on the economic situation connected with that phase of the oil industry represented by the association.

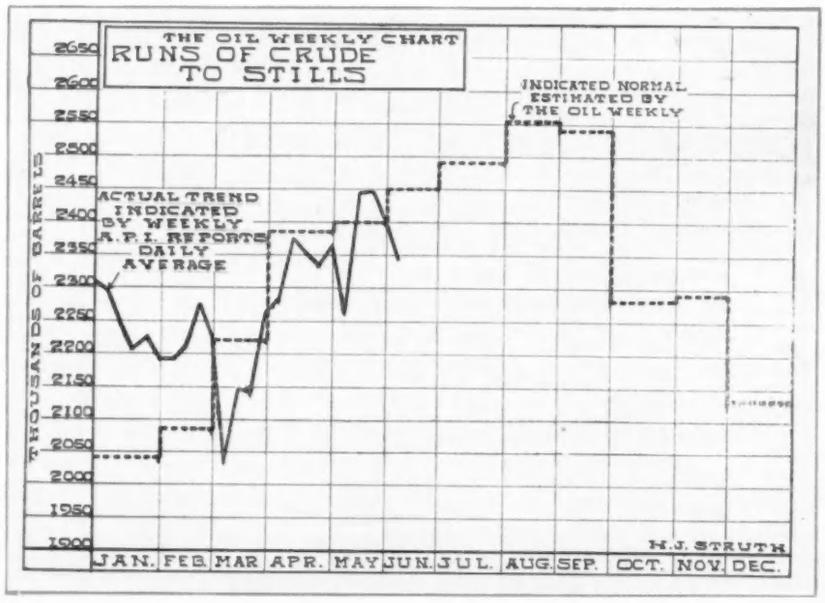
Refiners Curtail Runs; Gasoline Stocks Lower

A FURTHER reduction in refinery still runs was recorded last week, when throughput of refineries was 2,342,000 barrels daily average. This is a reduction under the preceding week of 60,000 barrels a day and represented a total decrease since the week ending May 21 of about 100,000 barrels a day.

Gasoline stocks decreased about 90,000 barrels, dropping to 44,247,000 barrels. Since the peak of gasoline stocks April 23 when the total was 47,285,000 barrels, there has been a reduction of more than 3,000,000 barrels in stocks.

Rush to Beat Tax Boosts Mid-Continent Gasoline

FOR the first time during 1932, jobbers were increasing inventories far beyond current demand and as a result the Mid-Continent market structure was at its strongest point in many months. Increased buying is based entirely upon a gamble that the new federal gasoline tax, which goes into effect June 21, will not be retroactive. In this event jobbers will be able to sell after that date on the basis of a one cent increase but from stocks purchased at the lower level. With the first spurt of increased buying, jobbers were shooting at the possibility of making the full one cent gasoline tax but the market has advanced an approximate


THE OIL WEEKLY CHART
RUNS OF CRUDE TO STILLS
INDICATED NORMAL ESTIMATED BY THE OIL WEEKLY
ACTUAL TREND INDICATED BY WEEKLY A.P.I. REPORTS DAILY AVERAGE
THOUSANDS OF BARRELS
H.J. STRUTH
JAN. FEB. MAR APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.

Crude Runs to Stills, Gasoline, Gas & Fuel Oil Stocks

(Figures in barrels of 42 gallons each)
Week Ending June 4, 1932

District	Crude Runs to Stills Total	Crude Runs to Stills Daily Average	Crude Runs to Stills Per Cent Operated	Gasoline Stocks (See Note Below)	Gas & Fuel Oil Stocks
East Coast	3,322,000	474,600	74.9	6,634,000	6,492,000
Appalachian	664,000	94,900	69.1	1,755,000	1,032,000
Ind., Ill., Ky.	2,017,000	288,100	66.8	6,358,000	4,050,000
Okla., Kans., Mo.	1,556,000	222,300	51.1	3,878,000	3,221,000
Texas	3,909,000	558,400	73.0	7,797,000	9,843,000
Louisiana-Arkansas	1,097,000	156,700	68.0	1,825,000	4,679,000
Rocky Mountain	198,000	28,300	19.7	2,001,000	639,000
California	3,064,000	437,700	49.5	13,999,000	97,102,000
Total Week June 4	15,827,000	2,261,000	61.7	44,247,000	*127,058,000
Total Week May 28	16,235,000	2,319,300	63.3	44,337,000	126,660,000
Total June 6, 1931	16,929,000	2,418,400	66.3	a43,541,000	130,508,000

The Texas and Louisiana Gulf Coastal Figures shown below are included above in the totals of their respective districts.

Texas Gulf Coast	3,125,000	446,400	84.0	6,229,000	6,885,000
Louisiana Gulf Coast	708,000	101,100	68.5	1,625,000	3,954,000

NOTE: Stocks at refineries, except in California district, which includes stocks of finished gasoline and engine distillate at refineries, water terminals and sales distributing stations and amounts in transit thereto.

(a) This figure is not entirely comparable with current stocks due to revisions made since original publication of this figure, for which revisions the basic information is not available by weeks. If it were possible to have made the revision, the new figure would reflect somewhat lower stocks.

*Not comparable with previous week's figure due to transfer in Oklahoma-Kansas district of 108,000 barrels from Gas and Fuel Oil storage to charging stock for cracking plants.

average of a half-cent which reduces the expected margin by one-half.

Low octane motor fuels were bringing about 4¾ cents near the week end and the trade was being asked five cents. The middle bracket or 57 to 65 octanes were quoted with a range of 5⅛ to 5⅜ cents, with an exceptionally heavy movement. Above 65 octane ranged from 5¾ to six cents. Two cents was being asked for 26-70 natural gasolines with a heavy demand for the stabilized grades. Nine to 11-pound naturals to the trade were ranging from 4¼ to 5¼ cents, 15-pound at three cents, 18-pound at 2¾ cents, and 20-pound at 2½ cents. Burning oils remained practically unchanged, kerosene having dropped to an average of about 3⅜ cents.

Expect Reaction

Mid-Continent marketers are divided on their opinions as to what will result from the heavy buying of the past week or 10 days. It seems quite evident that with no appreciable increase in gasoline consumption during the next month, July will be a bad month because of the fact that many jobbers will have inventories sufficient to carry them for several months. Refiners and producers may be able to offset any tendency to crack the market at that time by reducing runs to stills and by corresponding reductions in crude oil production.

Seasonal Increased Demand Brings California Cheer

THE drop in production to around 480,000 barrels is holding in California, and if operators can and will adjust themselves to the lower output, they will be well rewarded in the future for the effort. Most fields are meeting their allotments, but such fields as Long Beach, Huntington Beach, Playa del Rey, and Santa Fe Springs are over their allowables. Some of the fields are almost enough under their allotments to offset the excesses in other districts.

Price increases are being heard, due to an increased seasonal demand, but it might be better to await a more settled nominal output before adjusting prices upward. It is known that principal purchasing companies would be willing to pay more for crude if the base allowable is met and held for a definite period. There is still the chance for a reaction upward after the rapid drop, and for this reason future developments will largely determine the price schedule.

One of the chief benefits of the lower production will be an earlier resumption of field work. It is true that the potential is now far above the state requirements, but the potential of the settled fields is dropping steadily. The major companies expect to do a certain amount of prospecting and more work in proven fields when the demand for oil increases.

The demand for gasoline in California has held up remarkably well, although the demand from outside sources has been smaller. The domestic consumption is comparing favorably with that of last year. Inquiries have been received from districts that formerly bought heavily from California but which have been purchasing elsewhere during the past year.

The influence of East Texas is still felt by California, but the indirect shipments to territory formerly dominated by California have not been so pronounced.

Summarized Review of Field Results

	Completions	Oil Wells	Gas Wells	Failures	Initial Prod.
Arkansas	2	0	0	2	0
California	4	3	1	0	1,200
Illinois	0	0	0	0	0
Indiana	0	0	0	0	0
Kansas	15	8	3	4	6,395
Kentucky	11	3	0	8	91
Louisiana	15	7	0	8	2,650
Michigan	3	2	0	1	910
Mississippi	0	0	0	0	0
New Mexico	2	2	0	0	10,820
New York	0	0	0	0	0
Ohio	17	0	10	7	0
Oklahoma	31	16	7	8	22,583
Pennsylvania	0	0	0	0	0
Texas	222	192	2	28	1,327,043
W. Virginia	3	0	3	0	0
Miscel.	0	0	0	0	0
Totals	325	233	26	66	1,361,692

Shreveport Plant to Top East Texas Crude

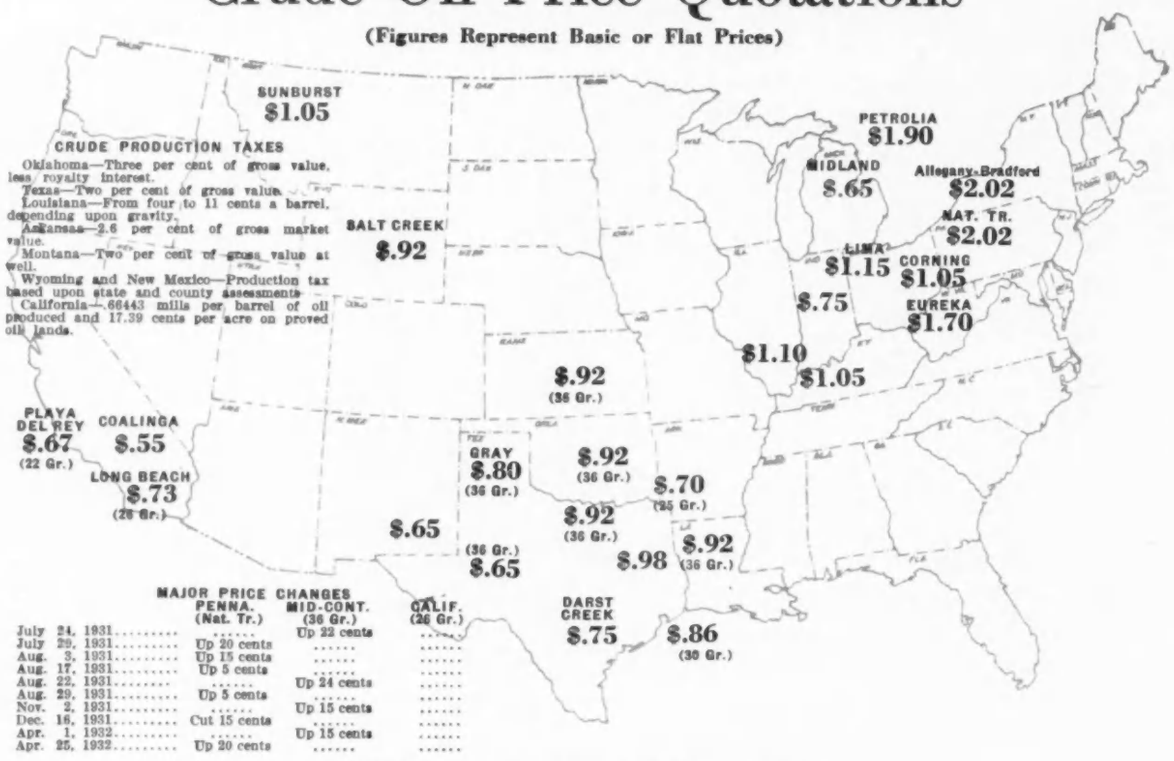
Shreveport, La.—Cedar Grove Refining Company, headed by Gene Griswold, has leased part of the plant of the D'Artois Refining Company in Cedar Grove, a Shreveport suburb, and has installed a skimming plant, with 500 barrels daily capacity. East Texas crude brought to the plant by tank cars is being used. Two stills and three towers were added. The operation of the skimming plant does not interfere with the operation of the lube plant of the D'Artois company at the same location.

Comparison of Permits Granted for New Wells

	For Week Ending June 10	Total This Month	Total This Year	Total This Date Last Year	1931 Year Total
Arkansas	1	1	9	23	34
California	4	9	153	195	342
Louisiana	10	13	202	158	309
Kansas	14	31	265	210	475
Oklahoma	27	50	481	457	842
Texas	226	484	3819	2433	6961
Totals	282	588	4929	3476	8963

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (26 Gr.)
July 24, 1931	.....	Up 22 cents	.....
July 29, 1931	Up 20 cents	.....	.....
Aug. 3, 1931	Up 15 cents	.....	.....
Aug. 17, 1931	Up 5 cents	.....	.....
Aug. 22, 1931	.....	Up 24 cents	.....
Aug. 29, 1931	Up 5 cents	.....	.....
Nov. 2, 1931	.....	Up 15 cents	.....
Dec. 16, 1931	Cut 15 cents	.....	.....
Apr. 1, 1932	.....	Up 15 cents	.....
Apr. 25, 1932	Up 20 cents	.....	.....

Official Postings and Differentials

(Revised to June 10, 1932)

California: (Effective June 19, 1931).

Signal Hill, Seal Beach and Alamitos Heights: 14 to 22.9 gravity 65 cents; 23 gravity, 67 cents with differential to two cents for each degree upward. Top price for Signal Hill, 30 gravity, 81 cents; top price Seal Beach and Alamitos Heights, 27 gravity, 75 cents.

Huntington Beach: 14 to 21 gravity, 65 cents; 22 gravity, 66 cents with differential of two cents for each degree upward. Top price, 27 gravity, 76 cents.

Inglewood: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity, 76 cents.

Playa Del Rey: 19 to 20.9 gravity 65 cents with differential of one cent for each degree upward. Top price, 25 gravity, 70 cents.

Olinda and Brea Canyon: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents; 22 gravity 68 cents with differential of two cents for each degree upward. Top price, 28 gravity, 80 cents.

Coyote Hills: 14 to 22.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents with differential of two cents for each degree upward. Top price, 28 gravity, 79 cents.

Santa Fe Springs: 24 to 26.9 gravity 65 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 73 cents; 30 gravity 75 cents; 31 gravity 78 cents; 32 gravity 80 cents; 33 gravity 83 cents; 34 gravity 85 cents; 35 gravity and above 87 cents.

Whittier, La Habra and Montebello: 65 cents a barrel.

Torrance: 14 to 21.9 gravity 65 cents with differential of one cent for each degree to 25 gravity and two-cent differential for 25 gravity. Top price, 25 gravity, 70 cents.

Richfield: 14 to 20.9 gravity 65 cents; 21 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity, 74 cents.

Elwood: 33 gravity 79 cents; 34 gravity 81 cents with differential of three cents for each degree upward. Top price, 36 gravity, 87 cents.

Newhall, McKittrick and Kern River: 55 cents a barrel.

Midway-Sunset, Elk Hills and Buena Vista Hills: 14 to 21.9 gravity 55 cents; 22 gravity 56 cents; 23 gravity 58 cents; 24 gravity 61 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 74 cents; 30 gravity 76 cents.

Lost Hills: 14 to 20.9 gravity 55 cents; 21 gravity 57 cents; 22 gravity 59 cents; 23 gravity 60 cents; 24 gravity 62 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 67 cents; 28 gravity 69 cents; 29 gravity 71 cents; 30 gravity 72 cents.

Coalinga: 14 to 24.9 gravity 55 cents; 25 gravity 57 cents.

Wheeler Ridge: 55 cents a barrel.

Athens, Dominguez and Rosecrans: 24 to 24.9 gravity 69 cents with differential of two cents for each degree upward. Top price, 34 gravity, 89 cents a barrel.

Oklahoma, Kansas, North Texas (Effective April 1, 1932).

Below 29 gravity: 76 cents with differential of 2 cents for each degree to 40 gravity and above which is posted at $1.00.

Texas Panhandle: (Effective April 1, 1932)

Gray County: Below 35 gravity: 71 cents, with differential of 2 cents for each degree to 40 gravity and above which is posted at 88 cents.

Carson and Hutchinson Counties: Below 35 gravity: 66 cents with differential of 2 cents for each degree to 40 gravity and above which is posted at 78 cents.

West Texas: (Effective April 1, 1932).

Crane-Upton, Crockett, Ector, Howard-Glasscock, Pecos and Winkler Counties, Texas, and Lea County, New Mexico: 65 cents a barrel.

Southwest Texas: (Effective April 11, 1932)

Refugio: Heavy 80 cents.
Refugio: Light: (Same as Gulf Coast—see below).
Gulf Coast: (Effective April 1, 1932).

Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio Light: Below 25 gravity: 80 cents, with differential of 1 cent for each degree to 40 and above which is posted at $1.00.

Mirando: 80 cents; **Salt Flat:** 75 cents; **Darst Creek:** 75 cents; **Pettus:** $1.00; **Markham:** Same as Gulf Coast.

East Texas: (Effective April 1, 1932)
Flat Price: 98 cents.

North Louisiana and Arkansas: (Effective April 1, 1932).

Caddo, Homer, Haynesville, Bull Bayou, Sabine, Cricton, De-Soto, El Dorado, Cotton Valley, Sarepta, Cartersville: Below 25 gravity 68 cents with differential of 2 cents for each degree beginning with 25 gravity and ending with 40 and above. Top price $1.00 a barrel.

Smackover: 65 cents.

Rocky Mountain States: (Effective April 11, 1932).

Salt Creek: Below 29 gravity 76 cents; 29-29.9 gravity 78 cents with differential of 2 cents each degree to 40 and above. Top price $1.00.

Elk Basin and Grass Creek: $1.20; **Big Muddy:** 98 cents; **Lance Creek,** $1.15; **Rock Creek:** $1.00; **Sunburst:** $1.05; **Osage:** 98 cents; **Cat Creek:** $1.20; **Pondera:** 90 cents; **Hogback, New Mexico:** 80 cents.

Mid-Western States: (Effective April 11, 1932).

Lima: $1.15; **Indiana:** 75 cents; **Illinois:** $1.10; **Princeton:** $1.10; **Wooster:** $1.25; **Western Kentucky,** $1.05.

Pennsylvania: (Effective April 25, 1932).

Bradford District: $2.02; **National Transit Oil:** $2.02; **Southwest Pennsylvania Pipe Line Oil:** $1.75; **Eureka Pipe Line Oil:** $1.70; **Buckeye Pipe Line Oil:** $1.55; **Corning Crude:** $1.05.

Michigan: (Effective May 17, 1932), **Midland:** 65 cents a barrel. **Muskegon:** 76 cents to $1.00 a barrel.

Canada: (Effective Nov. 3, 1931).
Petrolia: $1.90; **Oil Springs:** $1.97.

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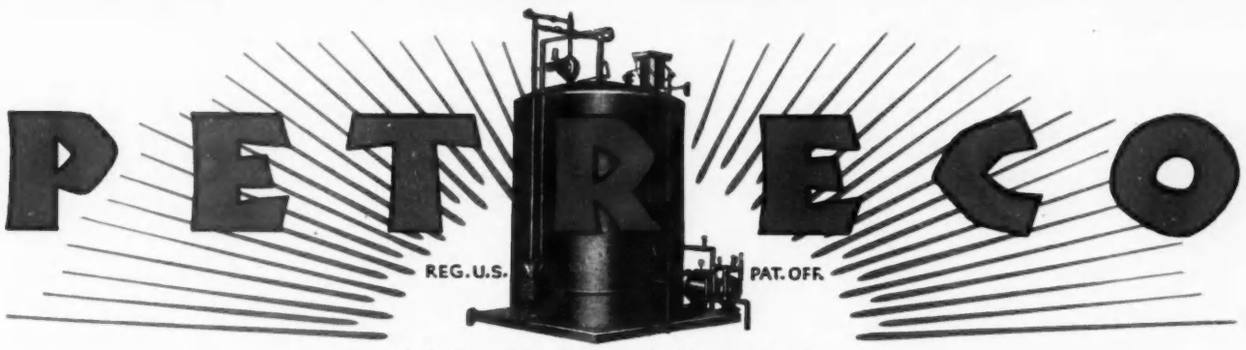

(Fully Covered by Process and Apparatus Patents)

A Study of

Rotary Drilling Fluids

Sealing Effect of Rotary Mud on Productive Sands in the Southwest

STANLEY GILL

Consulting Engineer, Houston, Texas*

THE hydraulic rotary system of well drilling was, as everyone knows, initially developed to make possible drilling in certain territories where the loosely consolidated formations rendered the older cable tool drilling methods impracticable. This was particularly true of the Gulf Coast area of Texas and Louisiana, and, to a somewhat lesser extent, of the California fields. The fact that rotary drilling was developed as a result of necessity, and to meet conditions under which cable tools could not be used, resulted, for many years, in confining rotary drilling operations rather closely to the territories in which it had been developed.

The fact that rotary did not for many years encroach upon cable tool territory was not solely attributable to this territorial development. To a greater extent, the limited use of rotary methods was caused by the fact that there were many entirely valid objections to its use, and that rotary drilling was not in its early stages developed to a point where it could compete with cable tools outside of the areas in which sub-surface conditions made its use obligatory. These objections fall into three main classes:

a. Satisfactory drilling progress could not be made in hard formations.

b. The rotary gave less accurate information on the formations penetrated than did cable tools. This was in part due to the difficulty of obtaining formation samples, and in part to the sealing of the formations by the mud fluid.

c. It was believed that the sealing effect of the mud fluid not only made the location of the productive strata difficult, but also permanently damaged the oil sands.

Of these three lines of objection, the first two were, in the early days of the development of rotary drilling, entirely valid. However, due to the development of modern rock bits, and coring methods, they have been entirely overcome, and it is probably justifiable to say that the rotary at present possesses appreciable advantage over cable tools, both in speed of drilling and in knowledge of the character of formations which can be obtained by proper coring. These improvements in rotary drilling practice have led, within the past 10 years, to wide-spread use of rotary methods in many territories in which cable tools were formerly exclusively employed. However, the third line of objection mentioned above, that relating to the sealing off of productive formations by mud fluid, has never been overcome, and it is still generally believed in many areas that oil producing formations will be seriously damaged if they are drilled with rotary. This is the cause of the common, and in many areas, compulsory, practice of drilling to a point somewhat above the producing horizon by rotary, thereby taking advantage of the high speed and of the economy of casing available by the use of this method; of casing off at this point, removing the rotary, standardizing the rig, and drilling into the sand with cable tools. The obvious expense and delay entailed by this method of completion make it desirable to complete wells with rotary wherever possible. Since the practicability of rotary completion is limited by damage to productive formations by drilling mud fluids, study leading to the determination of the extent of such damage, and of means whereby such damage to formations can be eliminated, may be expected to make possible ex-

*For the A.P.I. Southwestern District Sub-Committee on Drilling Practice: C. W. Alcorn (chairman), Shell Petroleum Corporation, Dallas; G. B. Corless, Humble Oil and Refining Company, Houston; C. W. DeLancy, Humble Oil and Refining Company, Houston; Stanley Gill; H. B. Hurley, Continental Oil Company, Big Spring; Blaine Johnston, Simms Oil Company, Dallas; L. K. Laney The Texas Company, Fort Worth; Melbert Schwartz, Rio Bravo Oil Company, Houston; W. C. Thomas, Magnolia Petroleum Company, Lake Charles, La.; A. W. Thompson, Dallas; J. Van der Henst, Gulf Production Company, Houston; and A. H. Weyland, Arkansas Natural Gas Company, Shreveport, Louisiana.

INTRODUCTION

STUDY of the sealing effect of rotary muds upon producing formations, the subject which has been studied by the American Petroleum Institute Drilling Practice Committee during the past six months, is inseparably linked with the question of the comparative merits of cable tools and rotary for the completion of wells. Obviously, the most serious objection to the use of rotary for completions lies in the belief that the circulating mud fluid damages the productive formations, and that more productive wells can be obtained by cable tool completion. It is the opinion of the Southwestern District and Mid-continent District Sub-Committee on Drilling Practice that the study of sealing effects of rotary mud fluids is best approached in its relation to its effect upon well completions, and that the most valuable information to be gained from the study of sealing effects lies in the comparison of rotary and cable tool methods of well completion.

tended use of rotary for well completions, and consequent large savings to the oil industry.

It is certainly true that drilling mud fluid has been known to penetrate deeply into oil bearing formations. However, it may be stated, as the consensus of opinion of the Drilling Practice Committee of the Southwestern District, that such penetration does not occur in continuous sand formations, provided a mud-laden fluid possessing the proper properties is employed. It is believed that all cases in which producing formations are damaged by drilling mud fluids fall into one of the following classes:

a. Cases in which the sand or gravel particles of the formation are exceptionally large, and in which the high permeability resulting from large interstitial passages prevents the formation of an impervious wall of mud particles.

b. Mud fluid may penetrate deeply into fissured or fractured formations, in which large passages may exist.

c. Damage by mud fluids will take place when fluids of improper character are employed, even though the oil sands are relatively fine and continuous.

The first two of these cases represent conditions under which rotary, using mud fluid, cannot be satisfactorily employed for well completion. It is believed, however, that such instances are the exception to usual conditions, and that in most areas rotary can be used for well completions without damage to the productive formations, provided the properties of the mud fluid are controlled so as to insure against penetration. Such control is simple and certain, and an understanding of the necessary properties will prevent loss of production when wells are completed by rotary, and make possible, in a great many fields, a considerable reduction of drilling expense.

This paper presents the field and laboratory data upon which members of the Southwestern District Sub-Committee base their belief that damage to production sands by rotary drilling muds can be avoided, in all but the exceptional cases.

Nature of Sealing Action

The action of a properly proportioned mud fluid in sealing off the porous formations penetrated in drilling may be very simply pictured. When the bit enters the porous formation, the mud fluid in the hole comes into contact with it. Since the weight of the mud fluid must always be such that its hydrostatic pressure is greater than the pressure existing within the formations, there will be a tendency for the mud fluid to pass into the porous formation. This tendency is measured by the difference between the two pressures just mentioned. The result of this action is to filter out the solid materials of the mud fluid against the face of the porous formation, and to form a wall of mud material upon the face of the bore hole. When a mud fluid of proper characteristics is employed, this wall is entirely impervious, and prevents the fluid from penetrating the porous formation. All tests and experience have shown that this mud wall can be very easily broken down when the pressure is reversed; that is, if the fluid in the hole is lightened, or if its level is lowered to a point where the pressure within the well is less than the pressure in the formation, the wall is broken down. By laboratory tests it has been shown that only a few pounds of pressure are necessary to break down this filter cake. Obviously, therefore, a clay wall of this type, formed by deposition from a proper drilling mud fluid, cannot of itself damage an oil bearing formation, since the wall is fractured by the formation pressure as soon as the column is removed from the well. It may be accepted as a fact that damage by clogging or sealing of productive formations will be effected only when mud fluid iteslf, or water filtered from the mud fluid, penetrates the sand. The nature of these penetration effects is described at greater length below.

Damage to productive formations by mud fluids, caused by the penetration action just outlined, may manifest itself by causing great difficulty in bringing a well in. This effect may not be permanent, and may be overcome after the flow of the well has cleaned the mud from the sand. On the other hand, permanent damage to the formation may be experienced, and both initial and ultimate production of the well be seriously reduced. Not only would penetration of this type affect the main producing horizon of a well, but it would also damage upper productive horizons passed through in drilling to deep production, or cased off while producing from the greater depth. Such damage to shallow oil-bearing formations may make it impossible to plug back and obtain production from them after the deep pay has been exhausted.

Field Data Upon Sealing of Formations

Unfortunately, there is little field information upon which to determine the extent of the damage to oil bearing formations which is caused by drilling mud fluids. Direct comparisons between rotary and cable tool completions, where both methods have been used at the same time in the same field, will of course make possible a conclusion as to whether or not the rotary drilling mud has damaged the production of the wells. Cases where such direct comparison can be made are, however, somewhat rare. In most areas, the same drilling method has been used for the completion of all wells, and comparison is impossible. Occasionally, however, deductions as to damage to formations by rotary mud can be drawn; this is true of cases in which there would obviously be no possibility of production if such damage had taken place.

The fields of the Texas and Louisiana Gulf Coast afford no comparison between cable tool and rotary methods of completion. Rotaries have been used in this area since the first production was obtained. A few wells were drilled in at Spindletop with cable tools in 1901 and 1902, during the first year of production in this field. These wells do not, however, afford any basis for comparison, since they were completed during the flush period of the field, when most

of the wells were brought in for from 10,000 to 20,000 barrels per day, regardless of the manner of completion.

In a sense, however, all production from the Gulf Coast area tends to indicate that the sands are not appreciably damaged by the drilling mud fluids. The very great recoveries which have been obtained from many coastal fields indicate that the productivity of the wells has not been seriously affected by the mud fluids. Fairly definite proof that the Gulf Coastal muds do not damage productive sands may be drawn from completion of wells in certain fields from which the original formation pressure has been almost completely dissipated.

A group of wells which were completed during 1924, 1925 and 1926 in the old shallow field at Spindletop by Gulf Production Company will serve to illustrate this point. The area in which these wells were completed had been intensively developed since 1901, the sharply delimited productive area of some 265 acres having been drilled to a density of more than six wells per acre. From this area there had been produced prior to 1924 a total of 47,999,054 barrels of oil, or an average of 190,000 barrels per acre.[1] During the three years 1924, 1925 and 1926, Gulf Production Company completed in this area 20 or 30 wells, ranging in depth from 800 to 1000 feet. From these wells, located in this previously drained area, was obtained a settled production of nearly 1000 barrels of oil per day. In the case of these wells, pressure conditions are highly favorable for penetration of the sands by mud fluid; since the formation pressures are extremely low. For the same reason, if penetration had occurred, the wells would never have produced, since the formation pressures would be inadequate to force the mud from the sand. It is justifiable to conclude that in this case the drilling mud fluid did not damage the productive formation at all. A possible reason for the fact that the sand in these wells was not damaged by the drilling mud is that Mr. Frank Patrick, field superintendent for Gulf Production Company, who had charge of the drilling on these wells, made a practice of thickening the mud fluid before drilling into the oil bearing formations. In a later section of this paper it will be shown that high viscosity of the mud fluid decreases penetration effects.

Work-Over Wells

Many similar instances of rotary completions in the Gulf Coast might be cited. It is common practice in this territory to work over wells in which the strainer has failed. In many instances these work-overs involve the use of mud fluid. Such work-overs are frequently, if not usually, made in wells from which much production has been secured, and in which formation pressures are relatively low. Although many work-overs are failures, a sufficiently high proportion result in satisfactory production to make it certain that mud penetration does not cause any appreciable damage to the formations; in fact, there is every reason to believe that such failures as do occur are primarily due to improper washing of the face of the sand, and an incomplete removal of the mud walls caused by the filtration action mentioned above. It is also common practice in the Gulf Coast to plug back after deeper production has been exhausted, and to perforate casing and set strainer opposite shallower formations which were passed up in the original drilling. This procedure has been reasonably successful in the Gulf Coast fields, and there is no reason to feel that the upper formations have been damaged, even though they have been in contact with the mud fluids for long periods.

A great mass of more or less indirect evidence of this type leads to the belief that productive formations of the Gulf Coast fields have not been damaged by rotary mud. This is in part due to the fact that the mud fluids of the Gulf Coast territory are of a highly colloidal character, and possess naturally most of the properties which are necessary for the prevention of penetration.

Although both rotary and cable tools have been employed in Central Texas and North Texas, there are few cases in which comparable completions make it possible to determine whether the productive formations were damaged by the use of mud in the rotary completions. Mr. Alcorn makes the following statement with reference to a group of wells which were drilled in Archer County by Shell Petroleum Corporation:

Mud Cleaned Quicker

"Up in Archer County we drilled 17 wells on our Abercrombie 'A' lease, in 1926 and 1927. These wells were approximately 1350 feet in depth and some of them, when originally drilled in, would flow small quantities of oil, not exceeding 200 barrels. Many of these wells had to be put on the pump immediately. On account of this extreme low pressure we tried drilling the wells in dry without any mud or water in the hole, we tried drilling in with clear water, and with mud, using rotary. It was definitely proved that the wells cleaned quicker and came on normal production quicker when mud was used to drill in with, therefore mud was used to drill in practically all of the wells. We had a spudder in the district that we used for cleaning out and at one stage of this development we considered that we could save a little time on a line fight by having the rotary rig moved to another location as soon as casing was set on top of the sand and drill the wells in with this spudder and we so drilled two of these 17 wells. *No difference whatever was noted in the ability of these wells so drilled with the spudder to produce as against the wells drilled in with the rotary, in fact after deciding to drill with the spudder we paid particular attention to this phase with the view that if it were proved better completions could be obtained by drilling in with a spudder we would drill all of the wells that way.*"

This is a perfectly definite case in which the productive formation was thoroughly tested, both with and without the use of drilling mud fluid, and in which the mud fluid did not damage the productive formation in the least.

Mr. A. W. Thompson, as a result of his wide experience in North Texas and Southern Oklahoma is of the opinion that the productive sands in this area are not damaged by the use of proper drilling mud fluids. Although most of the wells drilled under Mr. Thompson's direction have been completed with cable tools, his company completed several wells of their own in the Graham field of Southern Oklahoma with rotaries, apparently without any damage whatsoever to the sand. These wells had an initial production of from 200 to 500 barrels per day, and produced from a broken sand and sandy shale. Mr. Thompson has expressed the opinion that drilling mud does not penetrate the sands, and that the removal of the mud sheath or seal is facilitated by the softening action which is exerted upon it by oil from the formation. The basis for the latter opinion is that, in drilling practice, one of the most effective methods used to free a stuck string of drill pipe is to circulate oil in the hole, thus softening the materials surrounding the pipe. Similar experience by other operators in Central and North Texas areas appears to support the belief that rotary drilling mud does not deleteriously affect productive formations in this area.

In the East Texas field, all of the completions have been made by the use of rotary. In most cases, the natural mud produced in drilling is used in drilling into the productive sands, although some operators follow the practice of drill-

[1]Barton & Paxson in "Geology of Salt Dome Oil Field", A.A.P.G., 1926

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ing in with oil. Due to the conditions under which the field has been produced, there is no means of drawing final conclusions as to the relative merits of these two methods of completion, although it may eventually be possible to determine, from the ultimate production of the wells, whether or not the mud has damaged the formations. On the basis of performance up to the present time, no conclusions can be drawn.

In Northern Louisiana and Arkansas, rotary completion has been general practice, although cable tools have also been employed to some extent. Mr. A. H. Wayland, Arkansas Fuel Oil Company, writes that after checking the various operators in his district, he was unable to secure any comparative data which would serve to demonstrate the presence or absence of damage to the sands by rotary mud. It can probably be stated as a fact that none of the operators in this territory have been of the opinion that rotary drilling fluids have damaged their wells.

West Texas Experience

In the West Texas fields, due to the fact that much of the production is obtained from fissured or coarsely granlar limestone formations, rotary completions have not been extensively employed. Some operators have, however, used rotary for completion of a large number of wells, and wells so completed appear to be, in general, at least as productive as those completed with cable tools. This fact does not, however, prove that the formations were not penetrated by the drilling mud fluid, since many of the wells which were completed with rotary were drilled into the producing formations without the use of mud. It is probable that, where mud was used, a considerable quantity passed into the fissures of the limestone, and did not affect the productivity of the wells, being removed by the flow of the oil.

It is generally believed by the operators in the Panhandle that rotary cannot be successfully used for the completion of wells in this area. Mr. Jack Davis, Humble Oil & Refining Company, has submitted a very interesting memorandum covering the use of rotary in this area, and states that one of the principal objections to completing wells with rotary in the Panhandle seems to be that it is impossible to keep the Granite Wash formation clean and free from mud, which seals off the pay. In all cases in which Panhandle wells were drilled in with rotary, oil had been used as a circulating medium. Mr. Davis lists 17 wells which were completed with rotary, together with offsets which were drilled in with cable tools. He states:

> "In checking over actual production figures for a period of two years I find that wells drilled in with cable tools have produced a larger volume of oil than wells drilled in with rotary. In reaching this conclusion I have taken wells that were completed at about the same time and which had approximately the same initial production upon completion."

Mr. Davis attributes the mudding off of the day to the fact that the Granite wash carries large amounts of red rock and red shale. He believes that the shale and red rock are forced back into the formation by the oil used as a circulating fluid, and that they cause a considerable reduction in productivity. Since there is no record of completion of wells in this formation with rotary drilling mud, it cannot be said that the formation would be damaged if a proper mud was used for drilling in; in fact, experience in other territories supports the belief that a mud of proper sealing characteristics could be used for completion of wells in the Granite Wash without damage to the formation. Mud fluid would be less harmful than oil, if Mr. Davis' theory of the cause of the sealing is correct.

Rotary drilling, using mud fluid, has been employed for completion of a very large number of gas wells in the Panhandle territory. These wells have been drilled by Murchison & Fain, Lone Star Gas Company, and by Texhoma Natural Gas Company. In many cases, since the formations penetrated do not make a satisfactory mud, artificial mud fluids of a highly colloidal character have been used in the completion of the wells. The rock pressure of the gas sands runs from 380 to 450 pounds per square inch. Since the hydrostatic pressure developed by a 3000 foot mud column is more than 1500 pounds per square inch, there will be an effective pressure of more than 1000 pounds per square inch, tending to force the mud fluid into the gas sands. Under these conditions, which are obviously highly favorable for sealing off of the sands by mud fluid, the operators mentioned above have been able to find little if any difference in productivity between wells drilled in dry, using cable tools, and wells completed with rotary, using mud fluid.

West Indies

An exceptionally thorough experiment upon damage to a productive formation by sealing with drilling mud fluid was carried through by Shell Company in the Dutch East Indies. The history of this experiment, as briefly reported by a representative of the Shell company, follows:

> "In the Indies the formations overlying the oil layers were generally soft and caving, also several water sands existed. This situation caused cable tool drilling to be slow and expensive practice particularly because of the large amount of casing required. When rotaries were introduced to the field they of course met opposition from almost everyone, on general principles. . . . . The opposition was finally worn down, as far as drilling the upper formations were concerned, but the opinion persisted that in drilling into the oil bearing layers this would be detrimental with rotaries, particularly because of the fact that these oil layers were shallow and consequently low pressure. It was finally agreed that on a certain number of wells on a drilling program one half of them would be drilled in with cable tools and one half with rotary, unless the first wells completed with the rotary showed to be damaged. This experiment was carried out and those in the Indies came to the conclusion that drilling in wells with rotary did not as a rule do any harm to the shallow and consequently low pressure oil layers and the decision whether to drill in a well with rotary or cable tools is now only affected by the drilling and operation cost. Moreover, when the pressures in the oil layers are such that they have to be drilled in with mud, the mud will return and do no particular harm and if the pressures are so low that drilling in of an oil layer with mud is not any more required to prevent blowing out, no harm to the oil layer will be done if such sands are drilled in with water or oil.
>
> "The above paragraph is a general statement of the conclusions the company came to in the Indies . . . .I have not been able to obtain the number of wells included in this experiment but believe it was about 50. What is meant in the above paragraph by 'the decision whether to drill in a well with rotary or cable tools is now only affected by the drilling and operation cost' is this: they have some sands that are only 700 or 800 feet deep, which can be drilled cheaper with cable tool machines than with rotary rigs and in such cases of course the wells are drilled in with cable tools. If you are familiar with oil production in the Dutch East Indies you know that all of the fields are shallow, being above 2000 feet in depth and are therefore what we

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consider low pressure. I would say that if any wells in the world would be damaged by drilling through with rotary, those would be."

It is obvious, from the above statement of the conclusions which were reached by Shell Company, that there could have been no penetration of the drilling mud fluid into the producing sands in this area.

There has also been described to the writer a very interesting experiment on the penetration of formations by drilling which was conducted by a large operator in Mexico. Data on this experiment was furnished by Mr. Paul Weaver, under whose direction they were conducted. In this case, the circulating fluid was carried in gauged tanks, and the rate of loss of mud accurately measured. As a result of these tests, it was concluded that the penetration of porous formation by drilling mud fluid depended upon the material originally contained in the formation, and that the following general rules applied:

a. When a formation contained gas, it would be more or less continuously penetrated by the mud fluid. The rate of penetration of a gas bearing formation by mud fluid was found to be roughly proportional to the pressure, and increased regularly as the applied pressure was raised.

b. When the porous formation contained water, penetration was determined by the difference between the hydrostatic pressure of the mud column and the pressure of the water in the formation. When the mud pressure exceeded the formation pressure, mud fluid would flow into the formation continuously; however, there was found to be a fairly definite maximum rate of flow of fluid into the water bearing formation. Increase in pressure beyond the pressure necessary to establish this maximum rate of flow did not necessarily result in any increase in the rae of penetration.

c. When the porous formation contained oil, there was little or no penetration by the mud fluid.

The rate of flow of the mud fluid into the formation which was observed in this test was on the order of a few barrels per hour. They serve to establish definitely the fundamental difference between gas bearing, oil bearing and water bearing formations in relation to penetration by mud fluid.

Formations Not Hurt

Considering the field information given above as a whole, it will be seen that practically all of the evidence available in the Southwestern District supports strongly the belief that productive formations in this area have not been injured by the action of rotary mud fluids. While it is doubtless true that productivity of many wells in the Gulf Coast area has been diminished by the action of mud, this is not due to penetration of the sand by mud fluid, or to any other actual sealing effect of the mud on the formations. It is rather attributable to the difficulty of washing the mud sheath from the face of the sand, and clogging of the very fine mesh strainer which is used in this territory by the solid material of the sheath. In other parts of the Southwestern District, there have been cases in which mud has penetrated the producing formations, and has even, in extreme cases, passed to adjacent wells. In all of these cases on which complete data are available, however, the penetration of mud fluid has been found to be attributable to the presence of fissures, or of large interstitial passages in the formation. The general belief that rotary cannot be satisfactorily used in the Granite Wash formation of the Texas Panhandle cannot be supported by any actual field data, since mud fluid has not been used in completing the few oil wells which have been drilled with rotary. It is probable that a suitable drilling mud could be used in the Granite Wash without damage to the formation.

Laboratory Data on Sealing and Penetration

When a mud laden fluid comes into contact with the face of a porous formation during the drilling of a well, it tends to be forced into the formation by a pressure which is the difference between the dydrostatic pressure exerted by the column of mud fluid and the pressure which exists within the porous formation. If the oil, gas or water contained in the porous formation are under a pressure greater than the dydrostatic pressure of the mud column, they will of course enter the hole; the weight of the mud column is, however, always held sufficiently high to prevent this entrance of formation fluids. As a result, in normal rotary drilling operation there always exists a difference of pressure which tends to force mud laden fluid into the formation.

If a drilling fluid were a simple liquid it would flow continuously into the porous formations. Since, however, rotary drilling muds are suspensions of solid materials these solids tend to be filtered out against the face of the porous formations, depositing a filter cake or mud sheath. It is this mud sheath which enables the hydrostatic pressure of the mud to support the walls of the wells by forming a more or less impenetrable wall around the inside of the bore hole.

The effectiveness of a rotary drilling mud in supporting the wall of the hole, and the extent to which either the mud itself or water filtered from the mud fluid will penetrate and damage the porous formations, are dependent upon the character of the suspended solids contained in the mud fluid, and upon the nature of the porous formation. Without entering into any detailed discussion of the more or less complex factors which are involved in the mechanism of cake formation, it is possible to recognize a few conditions which are of the greatest practical importance in well drilling operations.

In some cases where the fluid passages through the porous formation are extremely large, the mud fluid will pass into the formation without forming a cake on its face. Fissured formations, such as the cap rock of some of the Gulf Coast salt domes, fall into this class. Under these conditions, loss of returns cannot be prevented by the use of ordinary mud fluids, and special measures must be resorted to. For the purposes of the present discussion, such formations need not be considered, as they represent more or less abnormal drilling conditions.

Against the face of porous formations which do not fall into this exceptional class, solids will be deposited from any mud-laden fluid which is used for drilling. As this filter cake is formed, water is forced into the porous formation. Resistance to the flow of mud into the formation increases as the filter cake grows thicker, until a point is reached at which the resistance is so great as to prevent further flow of the fluid from the bore hole. The thickness of cake which is necessary completely to prevent passage of drilling fluid from the well to the formation is determined in any given case by:

a. The difference between the hydrostatic pressure exerted by the mud fluid and the pressure existing within the porous formation;

b. The character of the solids contained in the mud fluid.

Of these two factors, the first is relatively unimportant, since tests have shown that with a given mud the thickness of filter cake or mud wall required to prevent passage of

TABLE 1
The Effect of Pressure On the Amount of Penetration by Mud In a Consolidated Sand

Oil Sand Core from Peterson No. 2, Kilgore District, East Texas
Wt. of Mud—74.8 lbs./cu. ft.
Colloidal Content of Mud—18.5%
Viscosity of Mud—3.5 centipoise
Time Pressure Applied—40 minutes
Per cent Sand in Mud—15%

Pressure applied Lbs. 1 sq. in	Depth water penetrated core	Depth of core penetrated by mud	Thickness of Wall inches formed
20	Wet entire core	Negligible	3/16
40	Wet entire core	Negligible	3/16
60	Wet entire core	Negligible	3/16
80	Wet entire core	Negligible	3/16
100	Wet entire core	Negligible	3/16
150	Wet entire core	Negligible	3/16
200	Wet entire core	Negligible	3/16
250	Wet entire core	Negligible	3/16
300	Wet entire core	Negligible	3/16
480	Wet entire core	Negligible	3/16
1300	Wet entire core	Estimated at 0.02 in.	3/16

(Tests by Production Engineering Research Department, Humble Oil & Refining Company.)

fluid is practically the same, regardless of the pressure. This fact is clearly illustrated by Table 1.[2]

In every case, although the pressures ranged from 20 pounds per square inch to 1300 pounds per square inch, the thickness of the filter cake was the same. In this test, therefore, the thickness of the cake was determined only by the character of the solids contained in the mud fluid. Such a condition is by no means unexpected or unusual, since exactly similar results are obtained in industrial processes involving the separation of solids from liquids by filtration. This may be illustrated by the following quotation from Wright: (*"Industrial Filtration,"* The Chemical Catalog Company, 1923).

> "That an increase of pressure increases the quantity of filtrate is not universally true. It is practical with almost theoretical accuracy when handling solids of a crystalline or granular texture. It is true to a certain extent with every material, but with some only through a small range of pressure. Those with the smallest limits are flocculent precipitates with which a few feet increased head of gravity feed is all that will increase the flow before a contrary result is obtained.
>
> "The reason that, in practice, the law of increased pressure does not always increase the flow, is found in the fact that in filtration the orifice (i.e., cake porosity) becomes a variable under pressure. For every material there is a pressure above which an increased flow is not obtained, but a decreased flow is had instead. This is known in filtration parlance as the *critical pressure* for that material."

With the "critical pressure" thus defined by Mr. Wright, there will, for any given material, be associated what might be termed a "critical thickness" of filter cake; that is, a thickness of cake which will be built up before passage of fluid is stopped, either above or below the critical pressure.

From the practical standpoint of well drilling operation, it is highly desirable that penetration of fluid into porous formations should be prevented by an extremely thin filter cake; that is, the drilling mud should stop passage of fluid at a low "critical thickness" of filter cake. The reason for this is obvious. When a thin wall of mud is sufficient to stop penetration of the formations, they will be thoroughly sealed against the admission of fluid from the hole. If, however, the mud is of such a nature that a thick cake, say more than one half inch in thickness, is required to prevent penetration, there will be a continuous flow of water from the hole into the formation, since the action of bit and drill stem will serve to remove the cake as fast as it is formed, and thus prevent it building up to the necessary "critical thickness."

Cases in which mud fluids of this unsatisfactory type are employed account for most of the instances of "shrinking holes" which are encountered in drilling. In such wells, the mud wall builds up to a great thickness, opposite porous formations, when the drill stem is removed from the hole, and this wall must be broken down to get the bit to the bottom.

Naturally the continuous admission of water which is caused by muds which form very thick filter cakes is extremely deleterious to oil-producing formations, since it may result in the introduction into the formation of a great quantity of water which will seriously interfere with bringing in the well. This action of water will be discussed in greater detail below.

"Critical thickness" of mud cake is determined by the character of the solids contained in the drilling fluid. It may be said, with considerable certainty, that thickness of mud wall necessary to prevent flow of fluids into porous formations is dependent almost entirely upon the colloidal properties of the mud fluid; the more gelatinous these solids are, the thinner will be the wall which will effect the

TABLE 2
The Effect of Viscosity On Penetration

Wt. of Mud—74.8 lbs./cu. ft.
Colloidal Content—18.5%
Mesh of Sand Used—Through 10 and retained on to 20
Per cent Sand in Mud—15%
Pressure Applied—40 lbs./sq. in.
Time Pressure Applied—5 Minutes.
Chemical Used to Increase Viscosity—25% Sodium Hydroxide.

Viscosity of mud	Depth of mud Penetration	Depth of water Penetration
5.0 centipoise	2.1 inches	2.1 inches
10.0 centipoise	1.45 inches	1.45 inches
21.0 centipoise	0.5 inches	0.6 inches
32.5 centipoise	0.5 inches	0.6 inches
40.0 centipoise	0.5 inches	0.6 inches
Above range of viscicimeter	0.3 inches	0.6 inches

[2]This table, and other data in this paper which are credited to Humble Oil & Refining Company, are taken from a report prepared by Mr. J. S. Crump and Mr. George E. Cannon, of the Production Engineering Research Department of Humble Oil & Refining Company, working under the direction of Dr. H. D. Wilde, Jr.

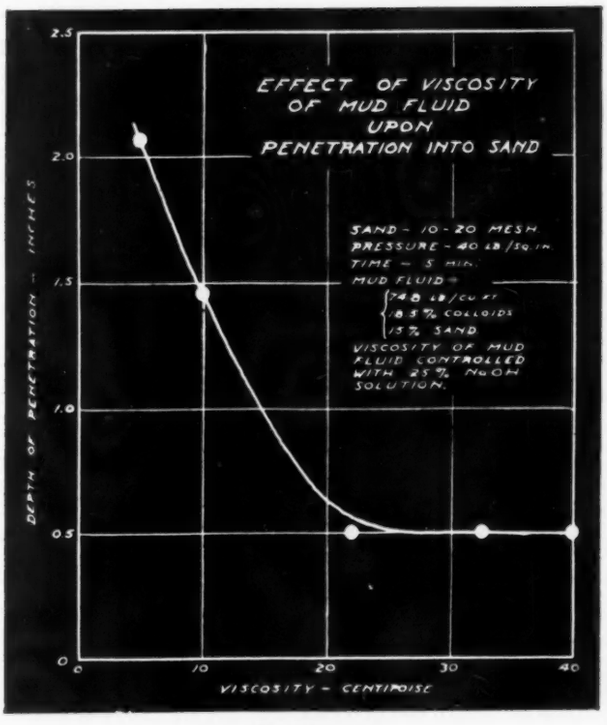

FIGURE 1

sealing. This may be illustrated by Table 2, which is reproduced from the Humble Oil & Refining Company report cited above, and the data from which are plotted in Figure 1.

In this case, caustic soda solution was used to swell the colloidal material of the mud fluid, thereby making it more gelatinous. A similar effect is obtained by the addition to the mud fluid of gelatinous colloidal material.

Table 2 and Figure 1 show that decreasing the viscosity of a mud increases the depth to which it will penetrate a formation. This principle has been applied to killing high pressure gas sands, where it has been found necessary to thin the mud fluid to a great extent before it could be pumped into a sand formation to shut off, permanently, a high-pressure gas.

Certain other factors influence thickness of filter cake, and consequently the depth to which mud will penetrate the sand before the filter cake prevents its further admission. Among these, the size of the interstitial passages of the formation is of great importance. This is shown by Table 3, which is the work of Humble Oil & Refining Company's Production Research Department, and the data from which are plotted as Figure 2:

TABLE 3

The Effect of Size of Sand Particles or Porosity On Penetration

Wt. of Mud Used—74.8 lbs./cu. ft.
Colloidal Content of Mud—18.5%
Viscosity of Mud—9.2 centipoise
Pressure Applied—40 lbs./sq. in.
Time Pressure Applied—5 minutes

Mesh of sand used	Depth of mud penetration	Depth of water layer filtered out in addition to the mud
Through 10 and on to 20	1.45″	0.4″
Through 20 and on to 40	0.5 ″	0.4″
Through 40 and on to 60	0.22″	0.4″
Through 60 and on to 80	0.12″	0.4″
Through 80 and on to 100	0.10″	0.4″

It will be noted that the depth of penetration decreases as the size of the sand grains, and consequently of the interstitial passages, becomes smaller.

The thickness of the cake and the depth to which mud penetrates a porous formation are also influenced by the amount of sand, or other relatively coarse material, which is contained in the mud fluid. This is shown by the following experiment, which is reported by Humble Oil & Refining Company:

> "A sample of mud containing 15 per cent sand, and having a viscosity of 3.5 centipoise was centrifuged and all of the sand was removed. Before the sand was removed, this mud would form a wall 3/16 inch thick when placed in contact with a porous core and subjected to pressure. After the sand was removed, the thickness of the wall formed was reduced to 1/16 inch."

These investigators also found that fine sand and suspended matter in the sand cut down the depth penetrated into the formation by the mud.

The nature of the fluids which are contained in the porous formation also influences the depth to which mud will

TABLE 4

Difference in Amount of Penetration in a Gas, Oil and Water Soaked Sand

Wt. of Mud—74.8 lbs./cu. ft.
Colloidal Content of Mud—12.5%
Viscosity of Mud—15 centipoise
Mesh of Sand Used—Through 10 and Retained on to 20
Pressure Applied—40 lbs./sq. in. for 5 minutes

Difference in sand	Depth of penetration of mud	Depth of water layer filtered out of mud
Oil	1.8 inches	0.0 inch
Gas	2.0 inches	0.2 inch
Water	2.8 inches	Impossible to determine

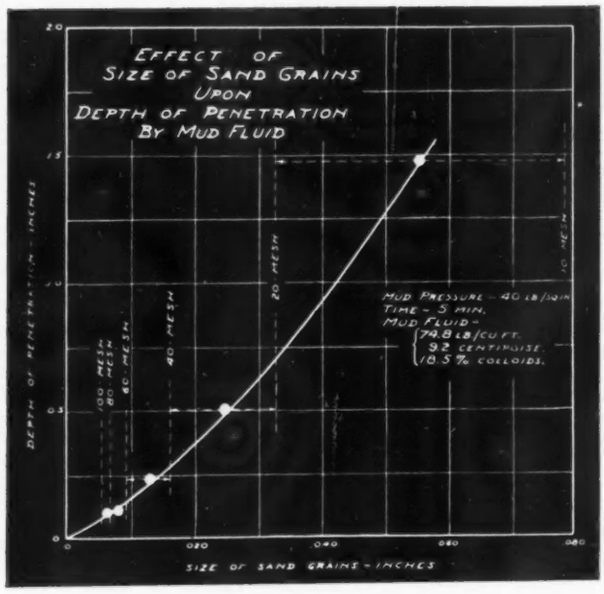

FIGURE 2

penetrate. This was shown by the experiments conducted in Mexico, which were described above, and is also illustrated by Table 4, which is reproduced from the Humble report.

Certain additional properties of the mud cake, which are of practical importance in well drilling operations, are shown by the following extracts from the report of Mr. Crump and Mr. Cannon:

> "An attempt to remove the mud wall by washing it as is done in the well met with little success. A mud wall was deposited on a porous core using 10, 40, 60, 80 and 100 lbs./sq. in. pressure. The wall formed at these pressures was then washed by passing a stream of water across the surface of the wall for 30 minutes and on examination at the end of that time, it was found that the wall still remained intact and that only a very small part of the surface had been removed by erosion . . . .
>
> "From the data obtained in these experiments, it is evident that 'lost circulation' is due to a crevice, honeycombed formation, or cavern in the formation and very seldom to the high porosity of sand. A gradual loss of mud, however, may be due to the filtration of the mud into a very loose sand. When this is the case, it can be overcome by increasing the viscosity of the mud with chemicals such as caustic soda, hydrated lime, or preferably a mixture of the two."

A general summary of the results of the tests conducted by Humble Oil & Refining Company is contained in the following quotations from the report:

"A. In General,

1. The mud penetrates into the porous formation for a short distance only.
2. Repeated application of the sand pressure produces no additional penetration.
3. The formation of a mud wall in the hole is due to filtration of the water out of the mud.
4. The thickness of the wall formed is comparatively independent of time and the pressure applied but depends upon the concentration and character of solid matter present in the mud.
5. After a wall is formed on the face of a sand, it is impossible to bring about additional

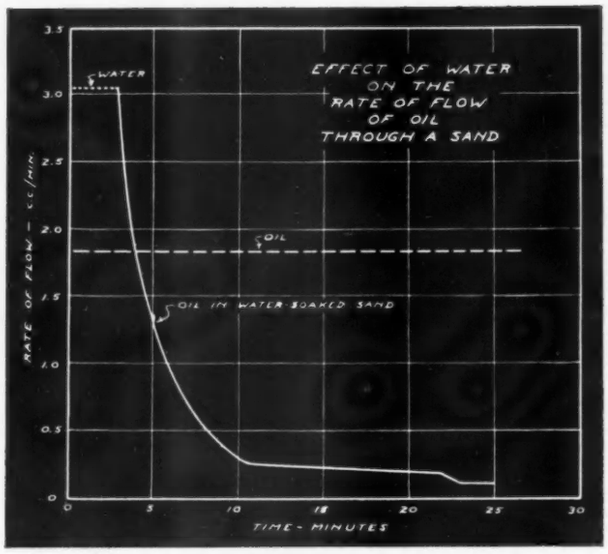

FIGURE 3

penetration by removing the excess mud and applying water pressure. However, if the well is ruptured, water can easily be forced into the sand.

6. The water that penetrates a sand and the mud wall formed by this action easily removed when the pressure is reversed.
7. The wall formed by a drilling mud on a sand is not easily washed off regardless of its thickness or the pressure applied to form the wall.
8. Fine sand and suspended matter in the mud cuts down the depth penetrated by the water in the mud.

"B. With Respect to a Consolidated Sand:

1. The penetration of mud into the pores of a consolidated sand is very slight and is estimated at not over 0.02 of an inch.
2. Water filters out of a mud when it is in contact with a porous formation and can be forced back into a consolidated sand for two or three inches before the pores are sealed off by the clay.

"C. With Respect to an Unconsolidated Sand:

1. The depth of penetration by mud in an unconsolidated sand is independent of the pressure applied but dependent upon the porosity of the sand.
2. By increasing the viscosity of a mud with chemicals, it is possible to decrease the depth to which the mud will penetrate an unconsolidated sand.
3. The depth of mud penetration in an oil-soaked, unconsolidated sand is not as much as in the case where a water-soaked or dry sand is encountered."

All of the above discussion of theoretical considerations and laboratory tests may be rather simply summarized. It supports, in detail, the conclusion arrived at from field experience in the Southwestern District; that is, the conclusion that drilling mud fluid does not penetrate sand formations, excepting those which are fissured or coarsely granular in character. In continuous sands of usual size distribution, the distance to which mud fluid penetrates is negligible. If, however, the mud fluid is deficient in those properties which cause it to build an impervious wall of slight thickness, there will be a continual filtration of water from the mud fluid into porous formations.

Effect of Water Upon Oil Sands

The water which is thus filtered into oil-bearing formations when defective mud fluids are employed may be extremely harmful, and may interfere seriously with bringing in a well, with the initial production, and with the ultimate recovery from the well.

The effect of this filtration of water from the mud fluid is to displace oil from that portion of the sand which immediately surrounds the hole. Depending on the thickness of sand which is thus impregnated with water, a considerable resistance to the flow of oil into the hole may be established. It is a recognized fact that a much greater pressure is required to cause oil to flow through a sand which is saturated with water than is necessary to cause it to flow through the same sand when it is wet with oil. This effect is clearly shown in Figure 3, which is reproduced from the Humble Oil & Refining Company report by Crump and Cannon, which has been referred to above. In the experiment which is logged in Figure 3, water was first forced through a sample of sand under a pressure of a 33 centimeter water column (about 6½ lb./sq. in.) Water flowed, under this pressure, at a rate of approximately three cubic centimeters per minute. Oil was then passed through a sample of sand, the pressure being unchanged. As the oil penetrated the sand sample, the rate of flow fell off rapidly, until, after 25 minutes, the rate of flow was less than 0.1 cubic centimeters per minute. This was less than one tenth of the rate of flow which was observed in a similar test, in which oil was forced, under the same pressure, through a sample of sand identical in all respects, but initially saturated with oil instead of water. Similar results are shown in Figure 4, which is also taken from the Humble report, and which shows the rates of flow of water alone, oil alone, and oil in a water-soaked sand under pressures

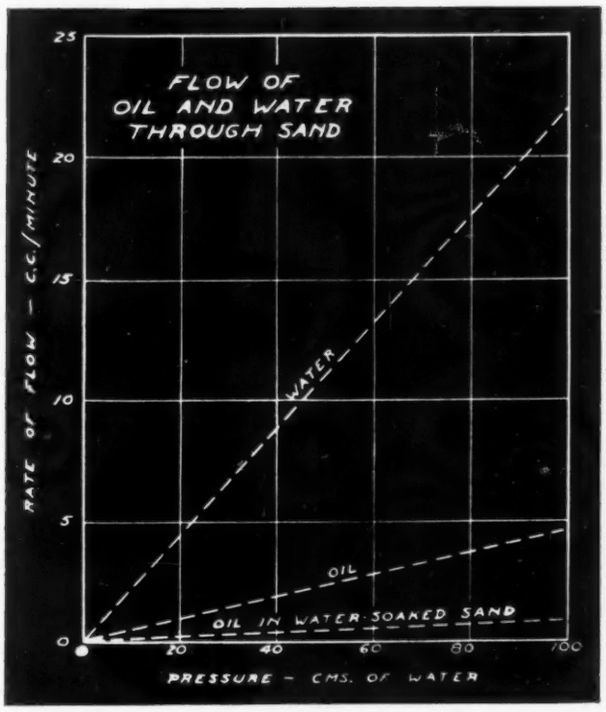

FIGURE 4

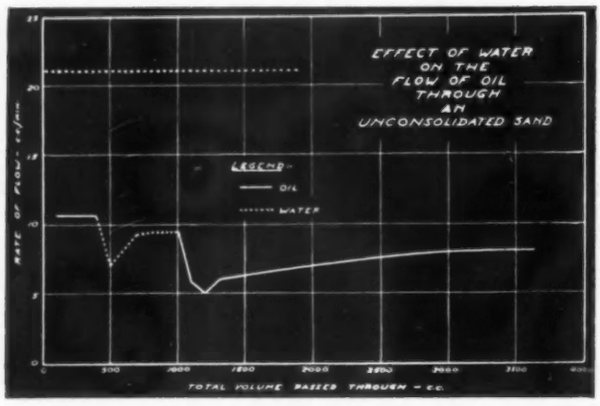

FIGURE 5

up to 100 centimeters of water (approximately 20 lb./sq. in.)

These tests were run upon small samples, and both pressures and rates of delivery of fluid are low in comparison with oil-well conditions (an idea of the rates of delivery may be gained from the fact that 3785 cubic centimeters are contained in one gallon), but the principle which they illustrate may be directly applied to those which prevail underground when bringing in a well. If that portion of the oil sand which immediately surrounds the well bore is thoroughly saturated with water, it will offer a high resistance to the flow of oil into the hole. This resistance may easily be from 10 to 20 times the resistance which would be offered if the water were not present. In extreme cases, where the formation pressure is low and the water penetrates to a considerable depth, the resistance thus set up may be so great that the oil cannot force its way into the well at all, and a failure may result in a formation which is actually potentially productive. In less extreme cases, penetration of water will cause extreme difficulty in making a well, and may interfere seriously with the initial, flush production. The high resistance which is set up by water in oil sands is familiar to all practical production men, who know how difficult it is to establish flow of oil in a sand which has once gone to water.

It appears most probable that the effect described above is not permanent, although the capillary properties of oil and water in relation to sands are such that the high resistance would be expected to be fairly persistent. The Humble Oil & Refining Company report data which are plotted in Figure 5 indicate that, on continued passage of oil through a water-soaked sand, the rate of flow gradually increases. In this experiment, oil was passed through a sample of sand under a pressure of 89 centimeters of water (about 17½ lb./sq. in.), and flowed at a rate of approximately 11 cubic centimeters per minute. 600 cubic centimeters of water were then flowed through the sand. Although this quantity of water was probably insufficient to completely displace the oil, the rate of delivery fell sharply when oil was again admitted, and reached a minimum of five cubic centimeters per minute after 100 cubic centimeters of oil had been passed into the sand. As the flow was continued beyond this point, the rate of delivery gradually increased, and a rate of some eight cubic centimeters per minute had been reached after 2500 cubic centimeters additional oil had been passed through the sand. This rate is approximately 75 per cent of the rate before the water was admitted; the form of the curve shows that, although the rate is gradually increasing, many thousands of cubic centimeters of oil would be required before it again reached the value which prevailed before the water was admitted. This experiment illustrates clearly the small quantity of water required to establish a high resistance to flow of oil through a sand, the fact that the effect will gradually disappear as oil is forced through the water-wetted sand, and the fact that a very long time, and a great volume of oil, are necessary to reduce the resistance to the value which existed in the absence of water.

In addition to this somewhat temporary resistance, the admission of water to oil-bearing formations may set up a permanently increased resistance to flow of oil into a well. Mr. W. T. Doherty and Mr. George E. Cannon of Humble Oil & Refining Company have suggested that water thus admitted will act in some manner upon clay or shale in the oil bearing formation, and cause a decrease in permeability. Experiments conducted by Mr. Cannon under the direction of Dr. H. D. Wiide, Jr., have established, definitely, the fact that action of clay and shale greatly reduced the permeability of oil sands.

Figure 6 illustrates the decrease of rate of flow of distilled water under a constant pressure on continued passage through core samples of Woodbine sand (the productive formation of the East Texas field). All of these curves show the same characteristics; a more or less rapid decrease in permeability as the flow of water is continued. The curve for Sample No. 540 shows definitely that the decrease in permeability is due to some action of the water upon the sand, rather than to any extraneous material carried by the water; this sample stood for three days in contact with water, but without water flowing through it. During this three day period, the permeability decreased by 75 per cent. Two facts tend to support strongly a belief that this loss of permeability is to be attributed to swelling of colloidal material, rather than to any other reaction between sand and water. First of these is the fact that a similar drop in permeability does not take place when fairly strong salt solutions are used in place of fresh water; everyone is familiar with the action of salt solution in preventing the swelling of clay colloids. In addition, Mr. Cannon has measured the swelling of numerous samples of oil-producing formations, and has found that many of them swell appreciably when wetted with water. He has also found, by test, that this swelling action takes place even when the formation is saturated with oil. This latter test is of great practical importance, since it proves, both that fresh water filtered from mud fluid will swell colloidal material contained in oil bearing formations, but that this swelling will

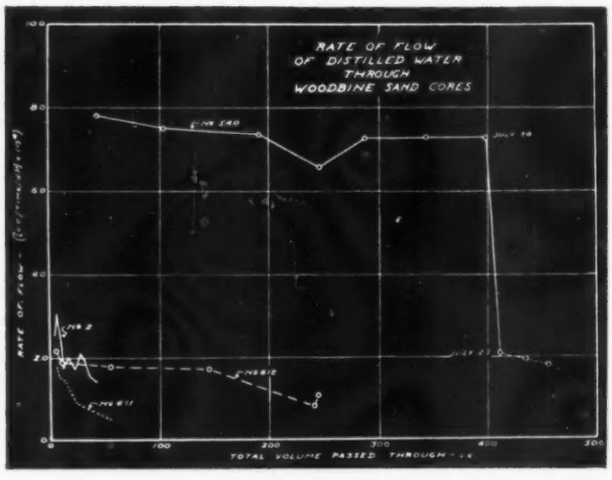

FIGURE 6

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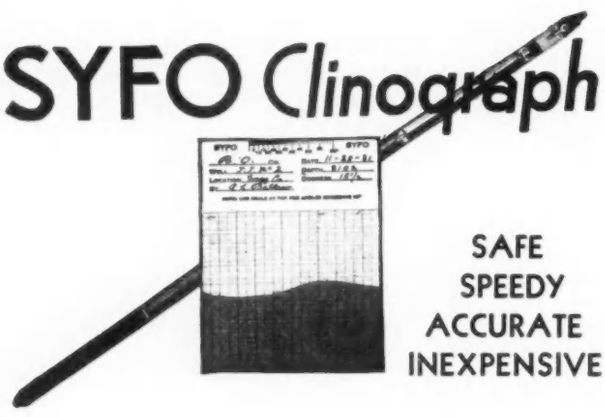

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not be reduced, even after large quantities of oil have been forced through the swelled formation. Hence, such swelling establishes a permanent resistance to admission of oil, and reduces the rate of recovery of oil, and the ultimate recovery of oil.

SUMMARY AND CONCLUSIONS

There have been presented data, both from field experience and from laboratory tests, upon which members of the Southwestern District Sub-Committee base their opinions as to the damage of sands by rotary drilling mud fluids. These opinions are summarized as follows:

a. Certain more or less exceptional formations are penetrated by drilling mud. Such formations are those in which the passages are so large that the mud cannot form a wall or sheath. In practice, this condition is encountered in fissured formations, and less frequently in very coarse sands or gravels, in which the interstitial passages are very large. Formations of this type are considered to be exceptions, which must be handled by special methods, and are not considered in the conclusions stated below.

b. Properly proportioned rotary drilling mud fluid does not penetrate, or deleteriously affect, the great majority of oil-producing formations. In fact, suitable mud fluid may be used with perfect safety and with assurance that production will not be affected in practically any formation.

c. The properties of drilling mud fluid may be very simply controlled to avoid damage to oil bearing formations. The properties which prevent penetration of, and damage to oil bearing formations. The properties which prevent penetration of, and damage to productive sands are:
High viscosity.
High concentration of colloidal material.
Low sand content.

d. In most cases in which productive formations have been damaged by rotary mud fluid, the damage is probably attributable to water which has been filtered into the formation from the mud fluid. Such excessive filtration of water can be completely prevented by control of mud properties.

e. Damage to productive formations when completed by rotary, with proper mud fluid, is, in almost all cases, no greater than, or even less than, the damage which would take place if cable tools were used for completion.

f. Insofar as possible damage to productive formations is concerned, rotary can be safely used for completetion of wells in almost any area, regardless of type of formations, depth, or pressure within formations.

g. Safe use of rotary for completion of wells necessarily implies understanding and control of the properties of drilling mud fluids.

Acknowledgment

In addition to his indebtedness to his fellow-members of the Southwestern District Sub-Committee, and particularly to Mr. C. W. Alcorn, the writer wishes to extend his thanks to several other gentlemen who have contributed largely to its preparation. Much of the subject-matter was discussed with Mr. C. P. Parsons, chairman of the Mid-Continent District Sub-Committee. For most of the laboratory data which are contained in the paper, full credit should be given to the Production Engineering Research Department of Humble Oil & Refining Company, and particularly to Mr. George E. Cannon and Dr. H. D. Wilde, Jr. Particular acknowledgement should be made of the extremely valuable assistance rendered, in discussion and preparation of data by Mr. W. T. Doherty of the Humble Oil & Refining Company.

Surface and Sub-surface

EQUIPMENT LOADS *of* Bandwheel Powers

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Chief Petroleum Engineer
Forest Oil Corporation
Bradford, Pennsylvania

Assisted by
R. E. WARNER
C. E. LEDEBUR
E. HUNGIVILLE

MULTIPLE pumping of oil wells in settled producing fields by means of the bandwheel power has been accomplished for years, its origin dating from the early eighties. Although the use of the bandwheel power is confined principally to shallow wells of 2500 feet or less in depth, there are some installations which are satisfactorily pumping wells of greater depth. The operation of a separate power plant at each pumping oil well is both convenient and flexible, but generally too expensive, especially where small producing, shallow wells exist. The discussion in this paper is confined to shallow wells which can be pumped by means of the bandwheel power, and no consideration is given the deeper well which must be pumped "on the beam." The bandwheel power has its greatest use, probably, in the old settled producing fields of the Eastern States, where lease operation costs and overhead expenses must be reduced to a minimum. Even in these shallow fields some operators choose to pump their wells by individual prime movers, such as electric motors. When conditions permit, it has been found more economical to operate a group of wells from one central plant.

Undoubtedly, the bandwheel power was originally designed and intended for use in localities of flat terrain, such as exist in most of the oil fields of the West. In some producing districts of the East, however, particularly in the Bradford field, the power was of necessity adapted to hillside use, and has given economical and satisfactory service. Because of the rough country in which it has been put to use at Bradford, the power has been called upon to operate against loads that would not be found elsewhere, and for this reason a more general knowledge concerning these loads should prove helpful to the operator. Some information will be given as to what effect the different types of surface equipment have upon the load carried by the bandwheel power, and also how various changes can be weighed or evaluated by the dynamometer. No discussion is made of the various makes or types of powers, which permits this paper to treat exclusively of the subject matter outlined in the title.

Description of Dynamometer

The dynamometer, as used in mechanical engineering, is simply an instrument for measuring force or power and in general may consist of several kinds. The pull-rod dynamometer for use on the rod-lines of jack-pumping wells is a development of the last few years and is patented by a prominent manufacturer. In one sense of the word, it is a tension indicator, as it is used in a special frame by means of which the frame clamps are placed over the pull-rod at a coupling, tightened, and the rod clamp loosened so that the entire load of the pumping well is transferred to the instrument. The instrument readings are direct, showing the maximum and minimum loads of a well at every stroke of the power. The dynamometer can be put on the pull rod without shutting down the power, and all information concerning loads in a well can be obtained within a few minutes. The reading of the instrument is given by means of a hand or pointer against a graduated dial, and these values must be converted to "pounds tension" by means of a calibration table. The dynamometer described is shown in Figure 1.

Need for Knowledge of Well Weights

In any bandwheel power installation it is seldom definitely known whether the power is in balance, when it has two eccentrics; or in the case of a single eccentric, whether the wells being operated are hooked on in such a way as to give the smoothest performance of the prime mover. Much dependence has been placed upon the "sound of the engine," or the amount of belt slippage in determining whether the load is in balance. The disadvantages of a power being out of balance lie in increased fuel costs, where such purchases have to be made; wear and tear on the power itself, as well as the prime-mover; and excess whip and wear on rod lines. Taken collectively, the ill effects of an unbalanced power accumulate into financial loss.

Theoretically, full knowledge concerning the weights of wells to be "hooked on" to a bandwheel power should be

*Presented before Second Pennsylvania Petroleum and Natural Gas Conference, The Pennsylvania State College.

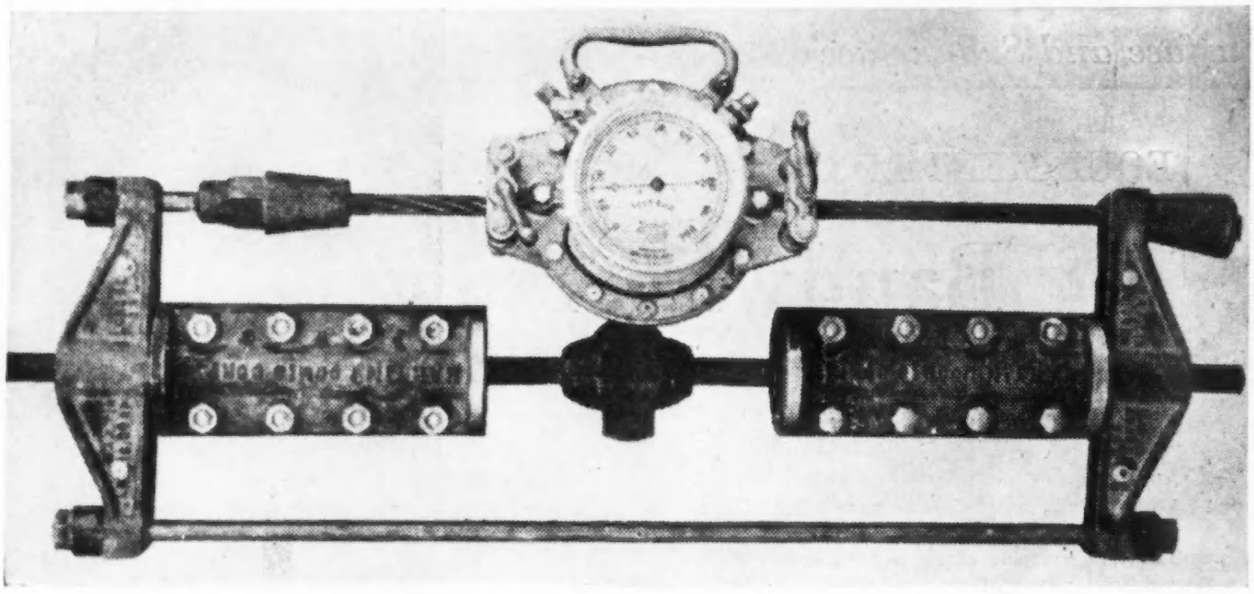

FIGURE 1

known in advance of the power installation so that the power can be most ideally located with respect to its wells in order to secure proper balancing. In a flat country, where all of the wells are about the same depth, and where the pull-rod lines do not lead over hills of sharp relief or are not diverted in direction by "swings" or other mechanical contrivances, it is easily possible to calculate the approximate weights of the various wells and therewith to construct a force diagram with which to properly locate the power with respect to the surrounding wells. In a country of sharp topographic relief, however, such as found in the Bradford oil field, it is a little more difficult as the wells may vary greatly in depth in a short distance, and surface features may make it necessary to use numerous "swings," "tie-downs," "hold-ups," etc., all of which increase and vary the weight of a well and the consequent load on the bandwheel power. Under such conditions it is sometimes necessary to locate the power in the best way possible with respect to its wells, and then strive for balancing by the use of a dynamometer in weighing the wells, with the idea of placing the same balanced load on one eccentric that exists on the other; or if a single eccentric power is used, to so distribute the wells around the circumference of the eccentric as to secure a balanced load at any position of the eccentric.

Tables No. 1 and 1a, from the Surface Equipment Company, Tulsa, Oklahoma, give the weights of various sizes of pull-rod and sucker-rod; and the weight of oil of various gravities in 100 feet of tubing.

In September, 1930, Forest Oil Corporation of Bradford started a dynamometer survey of all its bandwheel powers and a permanent record is now had of over 3000 pumping wells, showing the weight (maximum and minimum), the total load on each eccentric of the power and the total load on the whole power. A graphic record is included which shows the exact position of each well on the eccentric. A sample record of one power is shown in Figure 2.

In using the dynamometer, it is attached to the rod line, in the manner described before, at the first rod coupling or clamp away from the power. Securing the weight of the well from this position gives the total weight of each up to the point weighed and includes the weight of the plunger, sucker rods, and fluid within the tubing of the well, the friction of the "jack;" and the weight and friction of the rod line against its supports. As the rod line travels in its reciprocating motion on the up and down stroke of the jack, the dynamometer reading will vary between a maximum value on the upstroke and a minimum value at the time the downstroke is completed.

An analysis of these maximum and minimum weights, and a comparison between them and the actual calculated weight of fluid and rods within the well is interesting. The loads carried by sucker rods in a pumping well are composed of three distinct components, namely, the static load, the dynamic load, and the frictional load. The static load consists of the weight of the rods, the plunger, and the column of fluid lifted. The dynamic load is the load required to accelerate or put in motion the rods, plunger and fluid; and the frictional load is the resistance to motion caused by frictional effects between plunger, barrel, rods, tubing. Likewise, in speaking of the load which exists on a rod line immediately outside of the bandwheel power, the static, dynamic, and frictional loads must include the weight and frictional effects of the rod line and jack. The static load may be reduced only by changing the size or location of equipment, which is not often permissible. The dynamic and frictional loads cannot be eliminated, but they may freqeuntly be reduced by better methods of operating. The dynamic and frictional loads often are in excess of 40 to 50 per cent of the static load.

In using the pull rod dynamometer, the various loads which have been discussed are immediately detectable and are capable of being measured. On the beginning of the up-stroke of the well jack, the pointer or indicator of the dynamometer immediately gives its maximum deflection or reading, which is the dynamic plus friction load. Within a fraction of a second after the rods have been set in motion, the pointer on the dial of the dynamometer drops slightly to a value which is held for the remainder of the up-stroke; this reading gives the static load plus friction load. With a well pumping by means of bandwheel power, the frictional load is always associated with and never completely separable from the static and dynamic loads. Just as soon as the well jack begins its downward movement

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on the downstroke, the indicator falls to its minimum reading of the cycle.

Table 2 gives complete information on the wells operated by bandwheel power No. 11 on the Drake lease of the Forest Oil Corporation. A study of this table will disclose many interesting points concerning the loads on a bandwheel power. Discussion of a few of the columns of the table will be made.

Weight of Fluid

The weight of fluid, as given in Table 2, gives only the weight of a column of 40 gravity oil, allowing for the displacement of the ⅝-inch sucker rods, and does not include the weight of water which might be present. All the wells on this power produce some water, but at the time of weighing, it is never known how much is present in the tubing. At any one time the increased weight due to water is probably not more than 50 pounds in each well.

Total Weight in Well—The total weight of a well at the top of the polish rod on the upstroke is simply the weight of the polish rod, plus the weight of the string of sucker rods, the plunger and the weight of the fluid above the travelling valve. On the down-stroke, the weight of the fluid column is shifted to the standing valve, and if a dynamometer were placed between the end of the jack beam and polish rod it would show the weight to consist of the weight of polish rod, sucker rods, and plunger, less the amount their weight is lessened by friction and buoyancy in oil.

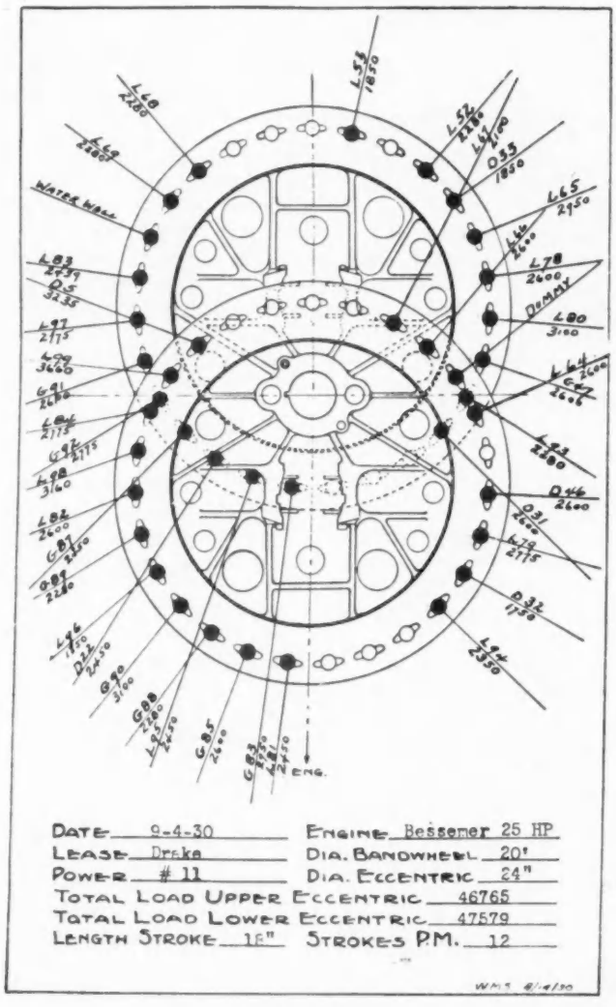

FIGURE 2

TABLE 1
Miscellaneous Data and Weights of Pumping Equipment

Weight Steel Pull Rods Upset End

Wt. per 100 ft., ⅝ in. 111 lbs., ¾ in. 162 lbs., ⅞ in. 219 lbs., 1 in. 290 lbs.

Pull Rods Plain End

Wt. per 100 ft., ⅝ in. 110 lbs., ¾ in. 160 lbs., ⅞ in. 215 lbs., 1 in. 285 lbs.

Box and Pin Sucker Rods

Wt. per 100 ft., ⅝ in. 113 lbs., ¾ in. 161 lbs., ⅞ in. 222 lbs.

Pin and Pin Sucker Rods

Wt. per 100 ft., ⅝ in. 117 lbs., ¾ in. 165 lbs., ⅞ in. 225 lbs.

Tensile strength of rods based on ultimate strength of 65,000 lbs. per square inch area.

⅝ in. area .3068 = 19.942 lbs. ¾ in. area. .4418 = 28.717 lbs.
⅞ in. area .6013 = 39.088 lbs. 1 in. area .7854 = 51.081 lbs.

Standard Working Barrels

Tubing Size	Plunger Dia.	Area	Weight Water Per 100 Ft.
2 in.	1¾ in.	2.405	104
2½ in.	2¼ in.	3.976	172
3 in.	3¼ in.	5.940	257
4 in.	3¾ in.	11.04	478

TABLE 1a
Weights of Fluid in Pumping Wells
Weight of Fluid, 100 Feet
Two-inch Tubing Less Displacement of Sucker Rods

		½" Rods	⅝" Rods	¾" Rods	⅞" Rods
Water	62.4 lbs. per cu. ft.	128 lbs.	123 lbs.	117 lbs.	110 lbs.
15 grav.	60.25 lbs. per cu. ft.	123 lbs.	119 lbs.	113 lbs.	106 lbs.
20 grav.	58.24 lbs. per cu. ft.	119 lbs.	114 lbs.	109 lbs.	103 lbs.
25 grav.	56.36 lbs. per cu. ft.	115 lbs.	111 lbs.	106 lbs.	99 lbs.
30 grav.	54.60 lbs. per cu. ft.	112 lbs.	107 lbs.	102 lbs.	96 lbs.
35 grav.	52.95 lbs. per cu. ft.	108 lbs.	104 lbs.	99 lbs.	93 lbs.
40 grav.	51.29 lbs. per cu. ft.	105 lbs.	101 lbs.	96 lbs.	90 lbs.

2½-inch Tubing as Above

	⅝" Rods	¾" Rods	⅞" Rods	1" Rods
Water	199 lbs.	193 lbs.	187 lbs.	178 lbs.
15 grav.	193 lbs.	187 lbs.	180 lbs.	172 lbs.
20 grav.	186 lbs.	181 lbs.	174 lbs.	166 lbs.
25 grav.	180 lbs.	175 lbs.	168 lbs.	161 lbs.
30 grav.	175 lbs.	170 lbs.	163 lbs.	156 lbs.
35 grav.	169 lbs.	164 lbs.	158 lbs.	151 lbs.
40 grav.	164 lbs.	159 lbs.	153 lbs.	146 lbs.

Three-inch Tubing

	¾" Rods	⅞" Rods	1" Rods
Water	287 lbs.	280 lbs.	272 lbs.
15 grav.	277 lbs.	270 lbs.	263 lbs.
20 grav.	268 lbs.	261 lbs.	254 lbs.
25 grav.	259 lbs.	253 lbs.	245 lbs.
30 grav.	251 lbs.	245 lbs.	238 lbs.
35 grav.	243 lbs.	238 lbs.	230 lbs.
40 grav.	236 lbs.	230 lbs.	224 lbs.

NOTE—All figures to closest even number.

Total Weight of Equipment in Well and Out—This weight consists of the pull-rod between the power and well, the polish rod, sucker rods, and plunger.

Total Weight of Equipment and Fluid—Includes the weight of pull-rod, polish rod, sucker rods, plunger and fluids.

Dynamometer Weight at Power-Maximum—As explained elsewhere in this report, there are two maximum readings of the dynamometer on the upstroke; the greatest of these is due to the static load resulting from the power giving a reversible movement of rods immediately after the completion of the preceding down-stroke. The smaller of the two maximum readings shows the dynamic load which is the weight of the load after its movement has started. The average difference per well on Power 11 between the static and dynamic loads is approximately 426 pounds.

Dynamometer Weight at Well-Maximum—There are also static and dynamic loads at the well, as recorded in the two columns under this heading. The average difference between these two loads per well is approximately 251 pounds. The difference between static and dynamic loads

Well No.	Length Pull Line	Computed Weight of Pull Line	Total Depth	Elev. of Well Above or Below Power	Depth of Barrel	Computed Weight of Rods-Plunger Pol. Rod	Computed Weight of Fluid	Computed Total Weight In Well	Computed Total Wt. of Equip. in Well & Out	Computed Total Wt. Equip. Fluid	Dynamometer Weight At Power - Maximum		Dynamometer Weight At Well - Maximum		Computed Wt. of Rods Plunger Less Buoyancy	Dynamometer Weight Min.		Rec. Remarks
											Static Load	Dynamic Load	Static Load	Dynamic Lo.		At Pow.	At Well	
U 5	690	1047.2	1350	+ 9326	1285	1525.50	1305.30	2830.80	2572.70	3876.00	3400	2950	2775	2450	1383.38	570	1000	U 1 Td.-1Th.
L 72	675	1039.5	1265	- 2898	1135	1363.00	1152.93	2515.93	2397.80	3549.43	2600	2375	2100	1925	1227.47	550	800	L
U 51	685	900.9	1272	- 3973	1136	1384.15	1153.95	2538.10	2555.08	3689.00	3100	2950	2450	2280	1278.51	470	900	L 1 Th.
L 57	655	547.7	1268	- 1801	1145	1364.50	1163.09	2527.59	1911.20	3074.29	2280	1925	1925	1750	1239.86	600	800	U
B 33	635	689.9	1303	+ 1256	1210	1436.25	1229.12	2666.37	2109.15	3134.27	2450	2100	2450	2280	1308.42	350	350	L
U 46	675	1039.5	1246	- 3387	1135	1363.00	1152.93	2515.93	2395.50	3545.43	2775	2450	2200	1925	1227.47	570	800	U
U 47	690	893.2	1250	- 3780	1135	1383.00	1152.93	2535.93	2246.20	3399.13	2950	2600	2600	2280	1227.47	800	1000	L
L G 63	680	1016.4	1221	- 4379	1150	1404.75	1198.64	2603.39	2421.16	3619.79	3450	?	2580	2100	1274.24	690	890	U 1 Th.
L G 65	670	1031.9	1239	- 3609	1211	1440.40	1230.13	2670.53	2472.20	3702.33	2775	2280	2580	2280	1306.66	500	1000	U
L G 67	740	1139.8	1233	- 2580	1212	1441.55	1231.15	2672.70	2581.15	3812.30	2950	2600	2450	2240	1307.50	600	800	L
L G 68	1090	1540.0	1234	- 4344	1217	1647.30	1256.23	2903.53	2987.30	4223.53	3000	2600	2375	2200	1312.70	800	900	U
L G 69	960	1374.4	1267	- 529	1250	1485.25	1269.75	2755.00	2809.65	4079.40	2280	1925	2100	1825	1347.00	170	570	U
L G 70	1095	1670.9	1235	- 3255	1203	1431.20	1222.68	2653.21	3132.10	4324.11	3400	3000	2300	2100	1298.15	705	900	U 1 St. Rul.
L G 71	1010	1555.4	1279	+ 2469	1260	1496.75	1279.91	2776.66	3052.15	4332.06	3100	2600	2280	1925	1357.39	120	570	L
L G 72	1210	1863.4	1246	- 1342	1221	1451.90	1240.29	2692.19	3315.30	4856.89	2950	2450	1925	1575	1316.86	205	350	L
L 52	420	646.8	1282	+ 4087	1222	1455.05	1241.31	2696.36	2099.85	3341.16	2280	1925	1975	1750	1317.90	350	570	L
L 53	365	592.9	1341	+ 8084	1291	1520.90	1301.24	2822.14	2115.80	3415.04	2950	2600	2700	2280	1379.22	400	570	L 1 Td.
L 64	720	1108.8	1232	- 2006	1172	1395.85	1190.52	2586.37	2804.35	3894.87	3250	2775	2375	2000	1265.93	570	570	U
L 65	675	731.5	1246	- 982	1186	1411.65	1204.74	2616.39	2145.15	3547.89	2600	2450	2300	2000	1280.18	470	350	L
L 66	260	400.4	1258	+ 648	1178	1425.45	1216.93	2642.38	1823.85	3042.78	2100	1825	1925	1750	1294.28	570	350	U
L 67	140	215.6	1277	+ 2788	1217	1447.30	1236.23	2683.53	1662.90	2899.13	2580	2280	2580	2280	1312.70	800	800	U Well
L 69	310	477.4	1302	+ 6086	1212	1476.05	1261.67	2737.67	1953.45	3215.07	2600	2280	2600	2280	1338.69	570	1700	L (close
L 69	300	770.0	1350	+ 10934	1290	1531.25	1310.38	2841.63	2301.28	3611.63	2775	2450	2600	2450	1398.58	350	1200	L (to power
L 70	725	1116.5	1212	- 3362	1157	1372.38	1170.20	2542.75	2489.06	3859.25	2500	2550	2375	2100	1245.14	690	690	L
L 79	490	754.5	1240	- 2689	1180	1401.75	1198.64	2603.39	2154.35	3357.99	2100	1925	2100	1925	1274.24	270	570	U
L 80	740	389.5	1220	- 1801	1190	1416.25	1208.80	2625.05	1785.48	2984.65	2600	2375	2600	2450	1291.64	800	1100	L
L 81	120	184.8	1284	- 191	1194	1420.85	1212.87	2633.72	1605.68	2818.52	2280	2100	2280	2130	1298.79	350		U 1 Th.
L 82	300	462.0	1276	+ 2340	1196	1425.15	1214.90	2639.05	1885.15	3100.05	2450	1925	2600	2280	1290.97	570	1700	L (Well
L 83	530	816.2	1294	+ 5287	1234	1466.85	1253.50	2720.35	2283.05	3538.55	2280	1925	2280	1925	1330.17	350	1000	L (close
L 84	780	1201.2	1321	+ 8191	1291	1497.90	1290.92	2778.82	2699.10	3980.02	3250	2700	3100	2700	1358.43	350	1375	U (to power
L 95	600	924.0	1219	- 3180	1139	1380.60	1177.31	2547.91	2304.60	3481.91	2200	2100	1800	1460	1252.41	705	350	L
L 96	480	697.0	1210	- 3545	1193	1381.75	1178.33	2560.08	2074.75	3253.08	2990	2100	1925	1675	1253.10	800	570	U 1 Th.
L 96	370	569.8	1235	- 2647	1175	1399.00	1195.57	2592.57	1968.80	3167.67	2450		2200	2000	1269.08	350	1390	L 1 Th.
L 96	450	693.0	1245	- 341	1185	1410.50	1203.72	2614.22	2103.50	3307.22	2200	1975	1925	1750	1279.14	350	570	D
L 97	635	970.2	1261	+ 7208	1201	1428.90	1219.98	2648.88	2399.10	3619.08	2950	2600	2450	2280	1298.07	570	1000	L
L 98	840	1293.6	1299	+ 5268	1239	1472.60	1256.98	2731.18	2766.20	4024.78	3250	2600	2600	2280	1336.57	570	1000	U
L99	900	1386.0	1308	+ 5467	1248	1482.95	1267.72	2750.67	2868.95	4136.67	4400	3800	3250	2980	1341.92	570	1100	U 1 Th.
Total		33656.7				52961.30	45220.37	98181.67	86618.00	131838.67	101865	84115	87040	77740	48039.14	18575	27455	(1 R. C.
Total-On Upper Ege		U-16,131.5				U-24388.75	U-21621.80	U-46210.65	U-40519.25	U-61342.18	U-47680	U-41260	U-40295	U-38940	U-22120.77	U-8619	U-12025	
Total-On Lower Ege		L-17,525.2				L-28574.55	L-24598.47	L-53171.02	L-46099.75	L-70496.62	L-54185	L-42855	L-46785	L-41800	L-25918.37	L-9960	L-13380	

TABLE 2

Well Weight Data on Drake Power No. 11

is less at the well than at the power, due to the fact that there is less physical equipment there to place in movement.

Weight of Rods and Plunger, Less Bouyancy—Under this column are given the actual weight of polish rod, plus the reduced weight of sucker rods and plunger due to the buoyancy effect of the oil in the tubing. The apparent weight of any object in fluid is less by the weight of displaced fluid, than it is when withdrawn from the liquid.

Dynamometer Weight-Minimum—During the downstroke of a well, the dynamometer reading reaches its lowest value, as the back movement of rod line, sucker rods and jack is retarded enough to take most of the load from the rod line either at the power, or at the well.

The greatest influence in lessening of load on both the up-stroke and downstroke of a well is the well jack itself. It will be seen by referring to Table 2 that the actual weight of physical equipment and fluid within a well is usually greater than the weight shown by the dynamometer at the well. This is to be expected, and if there were no leverage action given by the Oklahoma type well jack, well loads would be much greater and would correspond with the actual weights of rods and fluid.

The well jack, however, is really a simple lever with the fulcrum (jack saddle) lying between the force which is being applied and the weight to be lifted. In a balanced lever, the product of the force in pounds and length of lever on one side of the fulcrum is equal to the product of the weight lifted and the length of lever on the other side. In a jack, the length of lever back of the saddle (fulcrum) is the remaining length of upright brace to the point where the rod line is attached. The length of lever forward of the fulcrum is the remaining length of bottom brace to the point where it meets the pitman.

For instance, the jack of well L 66 was measured and the length of the lever on the pull rod side of the fulcrum was found to be 54 inches, whereas the length on the well side is 38.5 inches. The weight of equipment and fluid in the well is 2642 pounds. The following simple equation can now be written:

$$x \cdot 54 = 2642 \cdot 38.5$$

where x = calculated weight or pull on rod line at well;

or,

$$\text{Calc. Dyn. Reading at Well} = \frac{38.40 \times 2642}{54} = 1883 \text{ lbs.}$$

Actually, the static load as shown by the dynamometer was 1925 pounds, a difference of 42 pounds, which is a fairly close check considering the human error of observation involved, by not having a recording device on this type of dynamometer. The same procedure may be followed in calculating the weight of the well at the power, provided the weight of the pull-rod is taken into consideration and discounted by the mechanical advantage gained by pulling it along a plane, instead of lifting it bodily.

The ratio of the two parts of the jack lever in Well L 66, $\frac{54''}{38.5''}$, or 1.40, is an important factor to consider in all calculations concerning pumping wells and their loads. This factor should be determined for each well, as it can be used in all weight estimates. Pull-rod weight at the well multiplied by this factor, gives the actual weight in the well; and conversely, weight in well divided by the factor is equal to the dynamometer reading on the pull-rod at the well.

The factor also enters into the relationship between the weight of the well on the downstroke and the minimum dynamometer reading. For instance, if the sucker rods and plunger in Well L 66 hung entirely free, their weight would be 1294 pounds, then $\frac{1294}{1.4}$ or 924 pounds should be the minimum weight recorded by the dynamometer at the well. The actual reading, however, showed 350 pounds, a difference of 574 pounds between the calculated and observed weights. This difference is undoubtedly accounted for by the retarding effect created by the plunger settling in the pump barrel against the new volume of oil drawn into the barrel on the preceding lifting stroke. As a matter of fact, it is possible that in some wells a small amount

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of force or power is necessary to shove the rod line back into position on the down stroke.

If one eccentric is loaded lightly compared with the other, then its wells are assisted on the up-stroke by the heavy eccentric and the very fact that the unbalanced load does exist. The force brought into play by the heavier laden eccentric is a positive and assisting one. When wells on the heavily loaded eccentric come into the lifting stroke, however, there is no assisting force. Such an unbalanced condition is not desirable, due to uneven stresses and strain in equipment and the momentary period of overloading which comes into play when the heaviest loaded eccentric is opposed to the lighter one. The same may be said of a single eccentric power where one side might be more heavily loaded than the other.

If the eccentrics of a power are unbalanced, the motion of the power is not smooth, the efficiency of the prime mover is lessened, and the power costs increase. Under an unbalanced load, there is the tendency for belt slippage to take place, which leads to high belting costs. There is also a chance for excessive wear in the eccentric rings.

With a detailed study of the bandwhel power, in endeavoring to understand the various horsepower loads, we are concerned with the maximum weights as registered by the dynamometer. The maximum load the prime mover is called upon to carry, is approximately the load of the heaviest loaded eccentric, and the advantage of balancing is shown by the following: Suppose that in a two eccentric power there is a load of 30 horsepower on one eccentric and 20 on the other. Because the maximum load the prime mover must handle is approximately that of the heaviest eccentric, it may be seen that the expense of pulling 30 horsepower a part of every revolution of the bandwheel is greater than would exist if the total 50 horsepower load were distributed between the two eccentrics, or 25 horsepower on each.

END OF PART 1

In Part 2, which will appear in an early issue, the author discusses balancing of powers through hook-up of wells in divergent directions, and application of the weight data secured through methods discussed in the foregoing.

Proper Method for Hard Facing Rotary Bits

Code of Recommended Practice Approved at Mid-year Meeting of the American Petroleum Institute

1. In order that bits may be rebuilt and hard-surfaced in a satisfactory manner, it is absolutely essential to provide a holder to support the bit during the operations. To insure perfect flexibility, the holder should be so constructed that the bit is gripped by the pin, in a horizontal position, in a clamp or collet that is either free to revolve itself or will allow the bit to be revolved about a horizontal axis. The adjustment of the clamp or collet should be sufficient to accommodate any size of pin, thus making it adaptable for all types of rotary bits.

2. Provide an adequate supply of heavy-gage copper sheet to serve as forms and templates for rebuilding worn bits. Adoption of this practice will result in time-saving and better quality of workmanship.

3. Never attempt to rebuild a worn bit until all previous hard facing material has been removed. This can best be accomplished by placing the surface to be cleaned in a vertical position and washing the old facing off with the welding flame or arc. Failure to observe this precaution will result in chipping of the new facing applied.

4. Bit surfaces to be hard faced or rebuilt should first be cleaned of dirt and scale by grinding.

5. When applying hard surfacing alloys by the oxy-acetylene method, always use a reducing flame, i. e., a flame with an excess of acetylene. A neutral or oxidizing flame will oxidize the materials at the surfaces of contact and result in a poor bond between them. When the electric arc method is used, avoid burning the steel or touching the arc directly to tungsten carbide inserts.

6. When rebuilding or hard-facing a bit, always have the surface being worked upon in a horizontal position.

7. Use high strength rod for rebuilding worn bits.

8. In rebuilding or facing a bit, pre-heat it to a very dull red heat. The source of heat should be applied some distance back of the edge of the bit. A neutral or reducing gas flame may be used if no furnace or forge is available.

9. For rebuilding worn bits, clamp a piece of heavy gage copper sheet firmly to the under side of the bit face, and outline the shape desired with chalk or soapstone on the copper. If the bit is badly worn out of gage, the setting of tungsten carbide inserts may be done at the same time as the rebuilding. In this case it is more convenient to work with the cutting face down, placing the inserts in their proper positions and rebuilding the bit around them. Working with copper forms and templates will greatly reduce or entirely eliminate subsequent grinding to gage.

10. Make certain that the cutting edges are concentric with the axis of the bit. Bits that are not truly centered may drill crooked holes.

11. In mounting tungsten carbide inserts on a bit, melt the steel thoroughly, so that the insert is partially submerged in the bit. Then cover it completely with a thin coating of the tacking rod. The inserts can be picked up and placed in position by heating the end of the tacking rod and touching it to the inserts.

12. Inserts should be protected by a covering layer of abrasion-resistant alloy rod, composite rod or tube metal. The covering layer should be puddled into the steel, just sufficiently to produce a strong bond. Excessive puddling will reduce the abrasion resistance of the facing, and too little pudding will result in subsequent chipping. During this operation all specks of scale and oxide should be floated to the surface to avoid holes in the deposit.

13. After the rebuilding and facing operations have been completed, cool the bit slowly to avoid cracking.

14. If necessary, grind the faced bit to gage.

15. To normalize the bit, heat the faced end uniformly to 1550° F. (light cherry color), hold for one-half hour at that temperature, and allow to cool in air.

16. To heat treat the bit, heat the faced end uniformly to 1550° F. (light cherry color), hold for one-half hour at that temperature, and quench in oil. Never quench in water. Draw the quenched bit by heating to 1100° F. for one-half hour. Cool in the air.

17. In general more satisfactory service will be obtained from hard surfaced bits which have been normalized than from those which have been fully heat treated after the surfacing operations. Unless very carefully controlled, heat treating operations may result in cracking of the facing and subsequent chipping in service.

18. Consult the instructions of the manufacturers for details relating to the particular products being used.

Volcanic Intrusions in Australia Promise Oil

Hamilton, Victoria, Australia.—Discovery of oil in commercial quantities within Southwestern Victoria and Southeastern South Australia in reward for extensive preliminary work is predicted in a report published under authority of the Western Petroleum Exploration Company No Liability, Hamilton, Victoria.

The report was prepared by A. McIntosh Reid, late Director of Mines and Geological Survey, Tasmania, and constitutes Bulletin No. 2 on oil development and prospects in the province which is treated. The report embraces detail reports on the several holdings of the above named company, along with an account of progress of petroleum prospecting work which has been done. Bulletin No. 1, which was published previously, gave an introduction to the economic geology of the province, and Bulletin No. 2 takes the investigation farther toward actual discovery of commercial petroleum reserves.

The second bulletin features additional information on basalt intrusives, which furnish evidence of existence of petroleum and of direct relation between the petroleum showings and domical structures, pointing the way for commencement of drilling operations.

The basalts intrude Pleistocene dune limestones in the forms of laccoliths, dykes, and plugs, it was stated, and are of upper Pleistocene or Recent age. They occur commonly as laccoliths, which however are not always symmetrical but may rise at places into domes. Laccoliths are present along the sea front; dome projections are found at Mt. Richmond, Hann's Farm, near Bridgewater Bay on Lady Julia Percy Island and elsewhere in Victoria; while domes may be seen at The Bluff, Mt. Burr, Mt. McIntyre and other places in South Australia.

These are true structures, it is emphasized, similar to the basalt laccoliths of Mexico and Cuba.

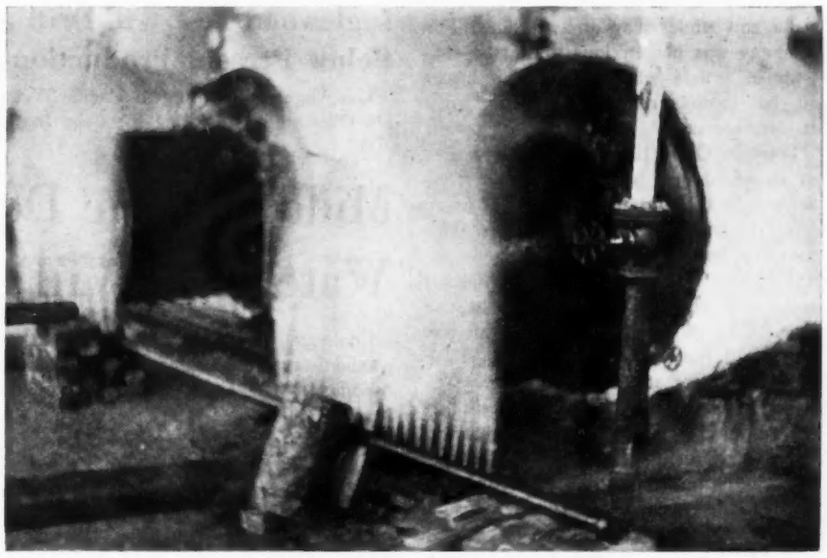
On domes of basalt which were found, the author of the bulletin sought and found fractures which had allowed leakages or seepages of petroleum, disseminated petroleum and crude oil residues being obtained from the rock.

Indications of oil have been found, it is stated, as (1) seepages, (2) asphaltum, and (3) petroleum and petroleum residues in basaltic rocks.

Seepages had been found at the time that the report was written at four localities. On Dudley Woods' farm, about four miles on the Heywood road from Portland, a well 135 feet deep yielded some thick, brownish-black oil, which was believed to come from Miocene beds, that were overlain by the Werrikooian series of the Pleistocene. In South Australia two miles southwest of Mt. Burr on the eastern side of the range the author said he found in a water filled cave a good showing of oil. Agitated at the bottom by means of a pole, the water released oil, which rose to the surface, spread in large films, and rapidly volatilized, the water being filmed with heavy oil two days later. In the sinking of a well near Cape Northumberland, South Australia, beds were penetrated that gave off gases smelling strongly of kerosene. Showings of oil were also found at Mt. Richmond.

Oil indications through presence of asphaltum were found on the coast near Swan Lake and opposite the old settlement of Kentbruck. At the former place a large amount of the asphaltum has been collected, the material being in the form of sheets, and being soft when in fresh condition. Other instances of asphaltum occurrence had been reported but they had not been confirmed.

Safety Device for Field Boilers



Boiler plants of Bataafsche Petroleum Maatschappij in Sumatra are rigged up with steam lines running horizontally across in front of the batteries at about six inches above ground level. These horizontal steam lines are perforated with holes of small diameter for distances of about three feet in front of each fire-box door.

The purpose of these installations is to prevent gas from being sucked into the fire boxes in event of gas blow-outs nearby.

It is well known that one of the gravest oil-field dangers is that, in event of a blow-out or wild well, escaping gas may be drawn into the drilling boilers before the fires can be put out.

Normally, these perforated steam lines are empty; but, when conditions of danger arise, steam is turned into them and escapes under pressure from small perforations in front of each fire-box door, the escaping vapor forming a steam-blanket rushing upward in front of each fire-box door with such force as to prevent the entrance of inflammable gas.

CALIFORNIA FIELDS

Lower Estimates on Middle Dome Production Potential Fruitvale Activity Seems Fixed at Dozen Wells.

BRAD MILLS, ***Staff Representative, Los Angeles, California***

Santa Maria Wildcat Finds Thickness of Brown Shale

Santa Maria, Calif.—Western Gulf Oil Company is drilling a hard brown shale at 9600 feet in Bradley 1, a wildcat in the Santa Maria district and the deepest well ever drilled in this part of the state. Such a thickness of brown shale indicates that the Vaqueros should be found soon. Since no drilling to such a depth has been done in this district, the well has no standard to meet and no definite objective, although many geologists think some conclusive formation should be found above 10,000 feet.

Dozen Drilling Average at Fruitvale to Continue

Bakersfield, Calif.—General Petroleum Corporation will drill on the Hensley lease in the Fruitvale field as an offset to wells now under way on two sides. The company was not anxious to start operations in a field which produces a heavy oil, but various requirements made such action necessary.

Western Gulf Oil Company, discoverer of the field and principal operator, has made a location on Section 22-29-27 as an offset to wells on adjoining leases. This company has been forced to become active against its wishes, but has completed some very good wells for a field of this type. The most recent completion was Price and Stewart 2, which was a 1500-barrel producer at 3936 feet.

The field has been extended slightly since present operations were started, most of the drilling in the northeast section having been prompted by the original completion, which was itself an extension.

A dozen wells are now being drilled, and new locations during the early summer months may be enough to maintain this average for some time.

Show in Belridge Deep Test Justifies Another Try

Bakersfield, Calif.—Belridge Oil Company is impressed enough with the showing of No. 64-27, North Belridge deep test, to make another location on the same section. Even failure to develop a large production at 8062 feet in No. 64-27 does not point to an unsatisfactory completion of the newest location, as the upper part of the Temblor should be productive. Number 64-27, the deepest well ever drilled in this district, is being tested again at 8062 feet, after running, pulling, and re-running 6⅝-inch liner. This test is one of the most important in the San Joaquin valley and the outcome will help to show the nature of the lower Temblor formation.

Los Angeles—Consolidated Oil Corporation has made a bid for Richfield Oil Company of California. The proposal is being considered by various committee groups which are interested in disposal of the company which is in receivership.

Recently George F. Getty, Inc., made a bid for Richfield Oil Company but no definite action has been taken on the offer.

Inglewood Test Will Drill Below Present Production

Los Angeles.—Drilling of Pacific Western Oil Company's Rubel 16 in the Inglewood field will be one of the important developments of the summer, as there are several reasons to believe that the well will be taken to zones below the shallow formation now producing. This test is making good time below 1000 feet. Fear of a deep drilling campaign in this field has been held for several years, and it is known that a few of the landowners are pressing operators for more action. Pacific Western Oil Company's decision to drill was supposedly based on pressure of certain landowners, but no claims or charges have been made public. The Inglewood field has been one of the most consistent producers in the Los Angeles basin, and the deep zones are feared very much by conservative operators in other fields.

Carpenteria Wildcat Tests Land Side of Structure

Santa Barbara, Calif.—The Texas Company is drilling in hard shale around 2000 feet in Community 3-1, a wildcat on the Carpenteria structure which should definitely prove whether the ocean or mainland side of the anticline holds more promise. The wells drilled along the ocean developed a high pressure gas pocket, but no oil was produced. The Texas Company is drilling inland from the tide line, while some activity is planned outside the mean high tide line. Coring was done to aid in locating the well, but the preliminary work did not show what to expect below 3000 feet.

Middle Dome Deep Test Shows Water and Will Go Deeper

Coalinga, Calif.—A second and deeper production test was made this week in Standard Oil Company's No. 6-29V, Middle Dome well which was drilled to 8385 feet to determine the possibilities of the intermediate Temblor formation. The well responded with a flow of 1400 barrels, of which less than 70 per cent was oil. Gravity of the oil was 51.7 and gas production was 26,000,000 cubic feet. Tubing pressure was 420 pounds and the casing pressure increased to 2350 pounds. After the well has flowed for a short time, it may be killed to locate the source of the water. An attempt to shut off the water may not be made until after the hole has been deepened, but the action of the well will largely guide future drilling.

A 4¾-inch flow string was run to 7380 feet. Two small beans were used. The well was first tested in the upper part of the Temblor above 8000 feet and produced about 1250 barrels of 52 gravity oil and a negligible quantity of water.

The showing of the well with the upper and intermediate Temblor included is disappointing, but it does not mean that satisfactory production will not be obtained on the Middle Dome. Danger of water strata was recognized but the fact that the top of the formation was free from water was an important development. The last shut-off string was 8⅝-inch at 7513 feet.

Latest estimates as to the probable producing acreage on the Middle Dome and the amount of recoverable oil show that this part of the field may not be the factor it was once thought to be. The maximum producing acreage should not exceed 1500, and there is the possibility that as little as 1000 acres will be productive. The recoverable oil has been estimated at various totals between 50,000,000 and 65,000,000 barrels. If flank leases produce satisfactorily, production may approach the maximum recoverable estimate. The dome is well defined and should produce

Curtailment Committee Asks 25-Cent Price Increase

Los Angeles, Calif., June 10. — An increase of 25 cents per barrel in the price of crude oil has been asked by the Executive Committee for Equitable Curtailment of the Oil Industry in California in an effort to maintain curtailment and relieve the burden on the small independent producers who have reduced their production to the economic minimum and who cannot curtail their output further without an increase in the price of oil.

William Keck, chairman, pointed out that action taken by the committee was not only directed toward improvement of the overproduction situation but was also aimed toward stabilization of employment among field workers by safeguarding the jobs of men already employed and to create additional jobs where possible.

If the increase in crude prices is not forthcoming the resolution declared that a weakening, if not a break, in voluntary curtailment may occur, with probable disastrous consequences.

a large quantity of gas along with the light oil.

North American Oil Consolidated has reamed to bottom at 9578 feet in Elsinore 1, flank test on the North Dome, and has landed a 4¾-inch combination oil string one foot off bottom for a production test of the lower Temblor formation. This well is in line for a new depth record for commercial producers. The oil string was cemented through perforations at 9135 feet.

Superior Oil Company is ready to complete Huffman 4, after establishing a speed record which will be hard to equal. The well was drilled to 8600 feet in a total elapsed time of three months. The combination liner run was handled in a somewhat complicated manner, with the hope that several questionable streaks would be shut off. Water has caused no trouble in the intermediate and lower parts of the formation in the three wells now producing on the Huffman lease, but some water was found in the top of the zone in Huffman 1. Huffman 4 is the deepest of the four wells drilled on this 160 acres. The Huffman lease was at one time counted out of the probable producing acreage on the North Dome. The tract is shown by surface indications to be perilously near the outside, but the plunge is milder than expected, and the three wells have all had a high initial flow.

Gato Ridge Discovery Well Not to Be Fully Produced

Santa Barbara, Calif.—Barnsdall Oil Company and Rio Grande Oil Company has completed production test in Tognazzini 1, discovery well in the Gato Ridge field, and may not operate the producer at the maximum rate in the immediate future. Average production for the period was around 800 barrels of 14 gravity oil and about 400,000 cubic feet of wet gas. The gasoline content of the gas was about four gallons per thousand cubic feet. This showed a remarkable richness for such a heavy oil. The well was completed at 2500 feet by plugging back from around 6000 feet. The oil has been tested in several ways and is a very good crude for a 14 gravity product. It has been mixed with other oils, shipped alone and otherwise tested. It makes a good cracking stock under certain conditions.

Seal Beach Work-Over Not To Inspire Deepening Rush

Los Angeles.—Standard Oil Company has completed a well in the McGrath zone at Seal Beach, but the initial production of the recompletion was not enough to justify extensive drilling to this zone. San Gabriel 12, was deepened to 6372 feet from the former producing depth of 5450 feet and had a new initial production of 600 barrels of 28 gravity oil. Most of the completions in this zone have been on the slope of the structure, and it may be possible to develop a higher average initial flow from inside completions.

Continental Oil Company has done a small amount of drilling to the McGrath zone, but no large wells have been completed in the formation. The leases which are most likely to produce well are held by the three major operators who control the conservatively developed section of the field.

California Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BUTTONWILLOW—		
Milsam Exploration Co.'s S. P. 41-7, 7-28-23	¶20	2573
FRUITVALE—		
Mohawk Pet. Co., No. 10	400	4105
LONG BEACH—		
Hancock Oil Co., No. 12	400	7945
A. T. Jergins Syn., No. 9	400	5100

New Operations

FRUITVALE—Western Gulf Oil Co., Bittle 1, 21-29-27. Western States Petroleum Co., Unruh 1, 21-29-27.

HUNTINGTON BEACH—John E. Hill, Hill 1, 10-6-11.

SANTA PAULA—Superior Oil Co., West 3, 13-4-21.

Wildcat Drilling Report

(Wells shut down not included)

KERN COUNTY

BLACKWELL'S CORNER—Fred Fowler's Lincoln 1, 16-26-19, dr gray sd 1800 ft.

BUTTONWILLOW — Milham Exploration Co.'s 32-7, 7-28-23, rigging rotary. Wilshire Oil Co.'s Salisbury 1, 7-29-24, testing upper showings around 4400 ft, td 6990 ft.

DEVIL'S DEN—C. B. Gauthier's No. 1, 24-25-18, dr shale 400 ft. Thomas Hannah's No. 1, 25-25-18, dr shale 3300 ft.

McKITTRICK—T. H. Purman's No. 1, 22-29-21, co 3962 ft. Welport Oil Co.'s No. 2, 19-28-21, dr gray sd 275 ft; No. 8, 26-29-21, 8⅝-in cas re-cmt 1050 ft, td 1300 ft, will continue production test.

SEMITROPIC — Fullerton Oil Co., Core Hole G-1, 1-27-22, dr shale 1600 ft.

SHALE HILLS—Rio Grande Oil Co.'s Utting 1, 7-27-19, dr shale 1300 ft.

WHEELER RIDGE—Barnsdall's K. C. L. 1, 15-11-20, dr shale 7100 ft, may not make test of any formation above bottom.

SANTA BARBARA COUNTY

CARPENTERIA—Texas' Community 3-1, 33-4-25, dr shale 1717 ft.

COAL OIL POINT—Bolsa Chica Oil Corp.'s No. 191-1, will redrill from near surface after pulling 9-in cas.

GOLETA—General Pet.'s More 1, 21-4-28, redrilling 3400 ft, td 4533 ft.

LOS ALAMOS—Barnsdall's Careaga 1, 31-8-33, dr shale 4635 ft. N. S. Wilson's Orena 1, 2-7-33, sd 4980 ft.

SANTA MARIA—Western Gulf's Bradley 1, 5-9-33, dr shale 9535 ft.

SANTA ROSA ISLAND—Standard's No. 1, rigging rotary.

VENTURA COUNTY

HOPPER CANYON — Bardeen Pet. Co.'s Lankershim 2, 13-4-19, dr shale 2578 ft.

OJAI—A. N. Macrate's Reva-Cosmon 1, 27-4-23, rigging rotary.

PIRU—Torrey-Ventura Oil Co.'s No. 1, 32-4-18, dr shale 3100 ft.

RINCON—Woodrow Pet. Corp.'s Woodrow 1, 4-3-24, dr shale 2575 ft.

SULPHUR MOUNTAIN — Wilshire Annex Oil Co.'s Thompson 1, 20-4-21, bldg roads.

TIMBER CANYON—Superior's West 3, 13-4-21, grading for rig.

MISCELLANEOUS

KINGS COUNTY—Magee and Stone's No. 1, 34-24-22, dr shale 5035 ft. Kettleman Reef Ridge Oil Co.'s Seymour 1, 10-23-16, co 1150 ft; No. 2, 10-23-16, grade. Dudley Dome Oil Co.'s No. 1, 9-23-20, dr shale 500 ft. Eagle Oil and Gas Co.'s No. 2, 15-23-20, dr shale 900 ft. Lacal Natural Gas Co.'s No. 1, 32-22-20, dr out cmt 340 ft.

MONTEREY COUNTY—Pacific Inland Oil Co.'s No. 1A, 34-27-11, will cmt 6¼-in cas at 1865 ft, oil and gas showings, td 2340 ft.

SAN LUIS OBISPO COUNTY—Emerich Oil Co.'s Holland 1, 22-32-22, dr shale 1430 ft. Kent and McDonald's No. 1, 3-32-22, redrilling 1000 ft.

STANISLAUS COUNTY—Rushing Oil & Development Co.'s No. 1, 20-3-13, dr shale 2600 ft, depth estimated.

TULARE COUNTY — Gravity Exploration Co.'s Hudson-Buck 1, 11-24-23, drill pipe stuck at 2200 ft, td 2210 ft. Kingsburg Exploration Co.'s Muller 1, 29-16-23, dr shale 2900 ft. Sheldon & Gholson's No. 1, 34-22-27, lcn.

YOLO COUNTY—Pacific Northern Gas & Oil Co.'s Guinda 1, 23-12-3, gas showings 2800 ft, actual depth withheld.

SOUTHERN CALIFORNIA

BUENA PARK—Buena Park Oil & Development Co.'s Langstaff 1, 34-3-11, lcn.

FULLERTON—Orange Thorpe Corp.'s Skinner 1, 32-3-10, dr shale 2400 ft.

HERMOSA BEACH—Tulsa Oil Co.'s Hermosa 2, 6-4-14, co 3150 ft.

LYNWOOD—William L. Jones' Graham 1, 31-2-12, co 1575 ft.

MONTEBELLO—A. W. McNiel's McNiel 1, 7-2-11, lcn.

NEWHALL—W. T. Ball's No. 1, 34-3-16, sdtr bit 1365 ft. Southern California Drilling Co.'s No. 2, 13-3-16, dr hard sand 905 ft. Superba Oil Corp.'s No. 1, 11-3-16, will deepen from 100 ft.

NEWPORT—Nuoil Co.'s Bannin 2, 29-6-10, rigging up rotary.

PLAYA DEL REY—Cooperative Development Co.'s No. 1, 26-2-15, dr 1525 ft.

PUENTE HILLS—Eldorado Oil Co.'s Baird 1, 30-2-9, dr shale 2855 ft.

WILMINGTON—Walter I. Barcus' Lupis 1, 28-4-13, rig.

OKLAHOMA FIELDS

Oklahoma City Recovers from Flood Damage and Will Have Seven New Wells Within Week

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

Oklahoma City Due Seven New Wells Within Week

Oklahoma City.—Phillips Petroleum Company's August 1, NEc SW SW NE Section 3-11n-3w, led the list of completions during a relatively quiet week in the Oklahoma City pool. With nine-inch casing set near the top of the sand at 6289 feet and the hole drilled to 6426 feet, it produced 3228 barrels the first two hours, flowing through a 4¼-inch choke. Gas was estimated at 40,000,000 cubic feet. Anderson-Pritchard and Phillips Petroleum Company bailed down and shut in without gauging Rayhill 2, SWc SW NW NE Section 10-11n-3w. Nine-inch is set at 6320 feet and total depth is 6479 feet.

Drill in With Oil

Seven tests are about ready to complete and should be on production within the coming week. In the southwestern portion of the pool, Phillips Petroleum Company's Gates 1, NW NE SW NE Section 22-11n-3w, was at 6490 feet after having set 6⅝-inch casing at 6477 feet. This completion will be of more than ordinary interest since it is to be completed by circulating oil instead of water, as has been the practice of this operator. With a looser, more porous sand than has been found elsewhere in the pool, several operators are of the opinion that completion with a hole full of water or rotary drilling fluid increases the danger of mudding off or trapping off oil from the hole. The circulation of oil is an experiment in that it has not heretofore been tried in the Oklahoma City pool, other than for loosening tools. It is further understood that this test will be completed by the use of a wall scraping tool which has been highly successful in rotary completions in California.

One Good Well, One Near Failure in Monnette Pool

Seminole, Okla.—The new Monnette area in the southern portion of the Seminole district had two completions, one of which appears to be a good well and the other either a dry hole or very small. Amerada Petroleum Corporation's Mitchell 1, NE NE NE Section 3-6n-4e, southwest offset to the discovery well, swabbed 420 barrels of oil and 135 barrels of water in six hours when tested about the middle of the week. Production is coming from the upper portion of the Simpson formation at 4228 to 4270 feet. Pure Oil Company et al's Tucker 1, SE SE SE Section 34-7n-4e, west offset to the discovery well, topped the Simpson at 4185 feet and produced 120 barrels of oil in 3½ hours while drilling at 4268 feet, in Simpson sand.

Other activity in the Sacred Heart pool is as follows: Magnolia Petroleum Company's Martin 1, SE NE SW Section 34-7n-4e, five locations west and two north of the discovery well, had top of the Hunton formation at 4035 feet and was drilling ahead below 4065 feet; Noble Drilling Company and Indian Territory Illuminating Oil Company's Lucas 1, NW NW NW Section 2-6n-4e, southeast offset to the discovery well, had top of the Hunton at 3937 feet, Sylvan shale at 4017 feet, and Viola limestone at 4122 feet. Six-inch casing was run at the total depth of 4145 feet.

West Konawa Pool

Arrow Drilling Company et al were drilling below 3400 feet in Noble 1, NE SE SE Section 26-6n-4e, four locations west and three south of Barnsdall et al's Gray 1, the discovery well of the West Konawa pool. One of the big surprises in this new area is the fact that it is better than 700 feet structurally higher than the Sacred Heart pool, less than six miles to the north. However, this difference in structural elevation does not mean as much as it may seem since the regional dip is northward and all beds are approaching the surface rapidly toward the south.

Oklahoma City Approaches Normal After Flooding

Oklahoma City.—Oklahoma City operators were still repairing damages done by the flood of June 3, and expected to have the field in normal working order within the next few days. Pipe lines serving the field were having difficulty in getting back to normal due to the fact that pump stations were flooded and many of the gathering lines were covered with water and mud. This is requiring a complete check of all connections and the resetting of a large number of tanks which floated off of foundations.

Southern portions of Sections 34 and 35-12n-3w, and the northern portions of Sections 1, 2, and 3-11n-3w, was most affected by the high water. Most of the drilling activity is in the southwestern portion of the pool which is relatively high and therefore but little shut down time was necessary. The biggest handicap was the transportation of materials and crews over short stretches of muddy

Gas pressure regulator unit of the Mincie, Indiana, station of the Ohio Fuel Gas Company to reduce pressure on trunk lines for city use. In the whole installation there are 120 welded steel flanges, some of which employed the shielded arc welding process of Lincoln Electric Company.

roads. The extent to which pipe lines were affected is seen by the fact that only 7070 barrels of oil was run June 3. The following day this figure was increased to 40,202 barrels and on June 5 had reached 57,418 barrels.

West Chandler Allowed Less Production for June

Tulsa.—Ray M. Collins, state proration umpire, reports that the West Chandler pool, Lincoln County, produced and ran 120,730 barrels of oil during May as compared with 120,947 barrels in April. Net allowed pipe line runs for June will be 114,554 barrels or a daily average of 3807 barrels allocated to the eight producing leases.

Two Interesting Wildcats In Seminole Area Start

Seminole, Okla.—H. S. Clarke et al are moving in tools at Hinds 1, NW NE NE Section 28-7n-4e, about midway between the Pearson and St. Louis pools in southern Seminole County, and Hilton Phillips has announced that he will drill a test in SWc SE Section 21-7n-4e, about a quarter mile northwest of the Hinds 1. Both will be in wildcat territory and should be of interest since they are located in an area thought to be unfavorable structurally.

Young Engineers Hold Final Session for Season

Tulsa.—The Young Engineers Club of Tulsa held its final summer meeting on Monday evening June 6. Harry F. Wright, consulting engineer and geologist of Tulsa, talked on valuation methods. Mr. Wright prefaced his remarks by the statement that careful valuation depends largely upon the judgment and training of the engineer since his results are predicated largely on factors which cannot be definitely known. Two general methods have been used in estimating oil reserves, first by the projection of decline curves and second by application of the acre-foot production principle with a number of variations of both. Mr. Wright predicted that in the next few years bottom hole pressure decline plotted against known production will be the principal data upon which reserves will be estimated.

The program was concluded with motion pictures and a talk by M. M. Kinley, who controlled the Moreni fire in Roumania.

The club will resume its meetings in the fall.

Ray L. Dudley, president of the Gulf Publishing Company, Houston, was a guest.

Humble Drilling Five South Texas Wildcat Tests

San Antonio, Texas.—Humble Oil & Refining Company is carrying on an extensive wildcatting campaign in South Texas. At this time, it is drilling five wildcats and two tests in proven territory.

Laura Thompson 1, Garrett Roche survey, Bee County, is drilling at 5695 feet. M. Fromme 1, G. W. Kersey survey, north of Goliad, in Goliad County, is drilling at 3350 feet. In Refugio County, M. V. O'Connor 1 and 2 are drilling at 4685 and 4710 feet respectively. Both wells are within 1000 feet of each other and are in the J. Keating survey near the Victoria line. Peter Rydolph 1, Kemper survey, northeast of the Slick-McFadden block, Victoria County is rigging up.

Two wells are drilling in proven area. Paul White 5, Survey 58 Government Wells field, Duval County, is down 1765 feet. Sue Denman 5-C, Camp sector, Darst Creek, Guadalupe County, is drilling at 2405 feet in the Buda lime.

Oklahoma Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CARTER COUNTY—		
Schermerhorn, Cox 8, nw ne se 23-4s-3w	28	1157
CREEK COUNTY—		
Comail Oil, B. Derrisaw 1-A, sw ne sw 6-17-7e	*	2485
Curtis Oil, A. Bucktrot 1, c sw sw, 17-17-10e	*	2071
Fogel & Marble, C. E. Stroubille 2, nw c se 7-19-8e	3	2765
A. W. Swift, J. Bruner 1-A, se nw sw, 3-19-9e	¶64	1310
Dean et al, E. Ross 1, nw c 19-19-9e	*	3127
Johnson O&R, F. Boyd 1, ne se nw 29-19-9e	140	2165
R. Dean et al, Gus Jefferson 1-A, ne c sw 30-19-9e	*	2588
McCurry, Watkins 3-S, nw se sw 28-17-11e	20	1686
MUSKOGEE COUNTY—		
G. S. Wilson, Barnett 5, nw nw sw 35-16-15e	¶5	1091
Foltz et al, Buel 1, se sw nw 8-15-18w	20	1629
OKLAHOMA COUNTY—		
Slick-Urschel, Classen-Edwards 11, se ne sw 3-11-3w 4 hrs.	¶95-3675	6473
Anderson-Prichard, Wilhoit 2, (lot 10 Terrace Lawn Addn) ne nw ne 10-11-3w, 2 hrs, 27 min.	¶51-4347	6391
Phillips Pet., Roush 1, sw se ne, 10-11-3w ..6¼ hrs, 5-in choke	¶85-179	6365
Phillips, Berg 1, ne c sw 26-11-3w 4 hrs	115	6595
Jameson-Grimes, Fee 1, sw nw se 34-12-3w, 3 hrs 22 mins.	¶75-12,327	6530
OKMULGEE COUNTY—		
Wigton-Long et al, Daniel 1, ne se se 25-13-13e	*	2918
POTTAWATOMIE COUNTY—		
Iron Mt. & Clara O&G, Brown 1, sw nw ne 1-9-4e	*	4556
SEMINOLE COUNTY—		
Blackwell O&G, Fleet 1-A, nw sw nw 13-5-7e (owdd)	50	4216
Empire, Fish "B" 4, sw ne se -19-7-8e. 12 hrs.	1286	3116
STEPHENS COUNTY—		
Pace et al, Watkins 10, ne se se 21-2s-7w	*	1745
Pace et al, Watkins 11, se ne se 21-2s-7w	175	1731
George Pace, Dilly 2, sw nw sw 22-2s-7w	200	1743
Curtis Oil, Dare 3, ne nw se 2-2s-8w	¶3½	1540
Pace, Allen 4, se se ne 3-2s-8w	15	1590
TULSA COUNTY—		
S. Owens, Bruner 5, cnl sw sw 13-19-13e	3	1020
WAGONER COUNTY—		
Ingram et al, Ingram 1, se sw se 30-16-16e	*	1920

New Operations

CARTER COUNTY—E. M. Boring, Wolf 1, c se se ne, 13-1s-3w. Schermerhorn, Cox 4, se sw ne se, 23-4s-3w (owdd).

CREEK COUNTY—Magnolia Pet., N. Williams 7, (owdd) swc ne se 4-16-7e. Johnson O&R, M. Boyd 2, nw sw ne 29-19-9e.

ELLIS COUNTY—Hivick & Algiers Oil, Roper 1, c se nw 21-20-24w.

LINCOLN COUNTY — Stanolind O&G, Lewis & Brower 1, (owdd), nw ne nw 14-8-14e.

OKLAHOMA COUNTY—Phillips Pet. Fish 1, ne sw ne sw 15-11-3w. Phillips Pet., Micks 1, nw ne sw 15-11-3w. Phillips Pet., Roberts 1, ne nw ne sw 15-11-3w. Phillips Pet., Drew 1, se nw se 22-11-3w. Phillips Pet. Dobson 1, nw ne nw se 22-11-3w.

PITTSBURG COUNTY — Moffett & Hall, Ben Turner 1, nw ne nw 14-8-14e.

PONTOTOC COUNTY — Edna Marie Oil, McWhirt 1, c ne ne se 11-2n-6e. Sunray, Grant 1, c se ne 11-4n-8e. Stanolind O&G, Roper 4, se se nw 32-5n-5e.

POTTAWATOMIE COUNTY — Denver P&R, Nye 1, c sw sw sw 30-6n-5e, formerly reported as c nw nw sw. C. W. James et al, Balley 1, c nw ne ne 28-7n-4e.

SEMINOLE COUNTY — Amerada et al, Chase 3, c sw nw se 29-9n-6e.

STEPHENS COUNTY — Pace et al, Watkins 12, ne c se ne se 21-2s-7w. Curtis Oil, Dare 4, nwc ne ne se 2-2s-8w.

TULSA COUNTY—Lambert et al, Herrod 1, ne c se sw 9-19-14e.

WAGONER COUNTY—J. E. Sewell, Adkins 3, cnl nw se 13-17-15e. Hartman, Sarty 2, 7-17-16e, se c nw; Braman 1, se c ne nw 19-17-17e. Metzgar-Foltz 1, cnl sw nw 30-17-17e. La Peire, Roberts 1-A, csl se sw 14-18-15e. J. Martin, Drew 3, cnl ne sw 26-18-15e.

Wildcat Drilling Report

(Wells shut down not included)

ELLIS COUNTY—L. C. Hivick et al, Roper 1, c se nw 21-20-24w, rog.

NOBLE COUNTY—Wentz Oil Corp. et al, Wolff 1, c se nw 17-20-2w, rig.

LINCOLN COUNTY—Hilton Phillips, Phillips 1, sw nw 2-14-3e, pb from 5080 to 4305 ft, sd. Sovereign, Selacek 1, ne se, 3-12-5e, td 4511 ft, D&A.

POTTAWATOMIE COUNTY—Brown et al, Souter 1, nwc, 35-11-4e, cellar. Iron Mountain & Clara O&G , Brown 1, sw nw ne 1-9-4e, Wx 4536-56 ft, 1000 ft wih, D&A.

PITTSBURG COUNTY—Moffett & Hall, Jones 1, c ne nw, 14-8-14e, spudding.

KIOWA COUNTY—Christian, James 1, ne se, 8-7-18w, co 1200 ft.

PITTSBURG COUNTY—Tape Oil Co., Fulton 1, se c, 34-7-14e, dr 2050 ft.

PONTOTOC COUNTY—Sunray, Grant 1, c se ne, 11-4-8e, lcn.

GRADY COUNTY—Carter et al, Community-Carson 1, se c, 12-3-8w, dr 4100 ft. English Drlg. Co., Heenan-Coe 1, ne se ne, 33-3-7w, dr 1315 ft.

PONTOTOC COUNTY — Edna Marie Oil, McWhirt 1, ne se 11-2-6e, lcn.

COMANCHE COUNTY — Trahan-Wilson, Pruitt 1-A, ne sw se, 8-1-9w, sd 1600 ft.

MARSHALL COUNTY—Hughes, Ayres 1, ne se 30-7s-7e, dr 220 ft.

STEPHENS COUNTY — Gillette Bros., Cooley 1-A, nw se nw, 17-2s-8w, rig timbers.

KANSAS FIELDS

Western Kansas Pools Go Slightly Over Allowed Runs During May. Voshell Loses More of Its Market.

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

Western Kansas Given 42,470-Barrel Potential

Wichita, Kansas.—Thirty-six producers in western Kansas are reported to have a potential of 42,470 barrels, according to Lloyd Pickrell, state proration umpire and agent of the Public Service Commission. Thirty-six producers yielded 118,461 barrels during May. Status of the pools as of June 1 was as follows:

Pools—	Potential June 1	Allowed runs for May	Actual runs for May
Isern	1,073	4,944	4,975
Heiken	2,382	2,771	2,642
Stoltenberg	4,276	11,518	10,763
Stratman*	1,000	....	....
Stratman	14,047	33,324	36,876
Beyer	250	1,661	1,661
Ploog	2,000	....	....
Sharpe	1,304	3,557	3,557
Schurr	11,988	45,827	45,848
Greenwalt	50	870	870
Richardson	4,100	9,316	11,269
Total	42,470	113,788	118,461

*Production in Section 23-16s-10w only.

Umpire Pickrell has notified producers in the Ritz-Decker-Garrett area that they would be allowed to continue to produce eight per cent of potential. As of June 1, 83 Viola lime wells had an estimated potential of 92,312 barrels and 58 chat wells had 23,230 barrels, or a total potential of 115,542 barrels. Pipe line runs during May totaled 399,933 barrels as compared with a total allotment of 386,382 barrels, making the current overage of 13,551 barrels. Accumulated overages to June 1 on seven wells having special allotments for the period March 1, 1932 to May 18, 1932, were 57,148 barrels. Dickey Oil Company's Decker 3, a chat well in Section 35-19s-2w, leads the area in individual potential with 4506 barrels.

Voshell Extension Well Rated 1000-3000 Barrels

Wichita, Kansas.—Mid-Kansas Oil & Gas Company is shut in awaiting additional tankage at Spurling 1, NWc NE Section 28-21s-3w, two miles south of the Voshell pool in southern McPherson County. The new well made two flows, total about 250 barrels, before being shut in and is being estimated from 1000 to 3000 barrels initially. Production is coming from chat at 3088 to 3142 feet. It extends production two locations southward nearest production being Western Gasoline Corporation's Wall 1, NW SW SE Section 21-21s-3w, which was completed in March for 125 barrels initial from chat at 3087 to 3130 feet.

Voshell Allowable Further Cut to 6300 Barrels

Wichita, Kansas.—Allowable production in the Voshell pool in McPherson County was reduced a second time within a week on June 6, when Skelly Oil Company further reduced its purchases to 2000 barrels daily. Present allowable is 5100 barrels daily or 36 per cent of the potential. Prior to June 1 operators were allowed 53 per cent of potential and were producing an average of about 6300 barrels daily.

Wichita, Kansas.—Gypsy Oil Company had top of Chat at 4370 feet and was coring below 4407 feet in Williams 2, SE SW SE NW Section 16-35s-3w, in the State Line pool, four miles southwest of Caldwell in southwestern Sumner County. Nearest production is in the company's Williams 1, SW NE SW Section 16-35s-3w, which was completed as a 60-barrel well from 4784 feet. Two other completions in the same section have had initials above 1500 barrels.

Seminole, Okla.—Late reports show that Pure Oil Company et al's Tucker 1, SE SE SE Section 34-7n-4e, found a richer pay streak at 4275 to 4277 feet, where production increased to 60 barrels an hour flowing by heads.

Kansas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CHAUTAUQUA COUNTY—		
Anderson et al, Yemert 4, sw ne se 36-34-9e	¶1½	1122
COWLEY COUNTY—		
Roth et al, Fee 1, swc se 22-32-4e	100	2405
ELLSWORTH COUNTY—		
Rosenthal-Beardmore, Stoltenberg 1, se ne se 22-17-10w	*	3400
J. A. Aylward, Stratman 3, se sw se 1-17-10w	1000	3283
GREENWOOD COUNTY—		
Gore-Phillips, Beal 4, sw se ne 28-23-11e	100	1981
McGinnes, Peoples 3, nw ne ne 33-23-11e	*	2000
Mathews Rex, Rexer 1, ne c 7-24-12e	185	1737
McPHERSON COUNTY—		
Lario O&G, Boal 2, sw se nw 24-19-2w	1928	3415
Gratton 2, nw ne sw 24-19-2w	1798	3409
RENO COUNTY—		
Jarvis et al, Rainbow 1, nw nw se 33-22-7w	*	3966
Olson Oil-Shell, Johnson 1, c sw nw 24-23-4w	180	3347
Goering 1-B, c ne nw 35-23-4w	¶59½	3322
RICE COUNTY—		
Empire et al, Mosemare 1, sw c nw 18-20-9w	1104	3323
RUSH COUNTY—		
Flynn et al, Budde 1, c ne 16-18-16w	¶45	3501
SEDGWICK COUNTY—		
Cant-Gypsy, Rothfuss 1, (owdd) ne nw ne 7-26-1e	*	3391

New Operations

BUTLER COUNTY—H. Garden, Beaner 1, c nw sw se, 36-26-5e.

COWLEY COUNTY—Ben Gralapp, Weigle 1, nw sw nw, 9-32-4e, formerly reported as sw sw nw. Davis et al, Hopt 1, se sw ne 22-32-4e. Roth et al, Moncreat 6, ne nw se 22-32-4e. Stover et al, Mier 1, sw se nw 34-32-4e. C. C. Lewis 1, c nw sw se 3-33-4e.

GREENWOOD COUNTY — Gore-Phillips, Brothers 2, ne nw nw 35-23-11e, formerly reported as nw ne nw. Mathews-Rex, Wilson 2, c w½ se nw 8-24-12e.

MARION COUNTY — Deiter-Yuker, Helback 1, c se ne 10-17-4e.

McPHERSON COUNTY—Davis et al, German 1, c se se sw 17-19-1w. Miller et al, Smith 1, c nw ne nw 29-19-1w. Barnsdall-Texas, Aelmore 1, (owdd), c ne ne 22-19-2w. Skelly et al, Wilson 1, c se se nw, 35-19-2w.

RENO COUNTY — Gled-Skelly-Shell, Franz 1, c nw nw 2-24-4w.

Wildcat Drilling Report

(Wells shut down not included)

SEDGWICK COUNTY—Standard of Kansas, Linot 1, c se sw, 8-28-2e, dr 3360 ft, hfw at 3350 ft. Cameron & Great Basin, Landson 1, c se nw, 13-28-2e, ru. Miller et al, Jones 1, sw c, 26-27-1e, dr 1552 ft. Scroggins et al, Bartlett 1, nw se nw nw 35-27-1e, spudding.

BUTLER COUNTY—Ramsey et al, Michael 1, sw nw nw 18-27-3e, dr 450 ft.

EDWARDS COUNTY—Mid-Kansas, Converse 1, sw ne ne, 30-24-18w, dr 3700 ft.

RENO COUNTY—National Union, Hill 1, ne se 18-24-4w, lcn.

FINNEY COUNTY — National Ref. Co., Wells 1, swc, 13-23-30w, td 5080 ft, ur 6-in.

HARVEY COUNTY—D. R. Louck, Regier 1, sw se nw, 9-22-3w, 10 inch 2535 ft, dr 2727 ft.

BARTON COUNTY — Midwest, Scheufler 29, c sw se, 9-20-11w, dr 1857 ft.

RICE COUNTY—Langston et al, Wells 1, ne se 4-20-9w, rig. Ray Ramsey, Hilton 1, sw ne sw, 6-20-9w, spudding.

BARTON COUNTY—Skelton-Ott 1, c se se, 16-19-14w, sd 3600 ft, cas trbl.

McPHERSON COUNTY — Snyder et al, Carlson 1, se c, 4-19-3w, spudding. Deitrick et al, Sinclair 1, se sw, 25-19-1w, 6-inch 3417 ft, hfw 3435 ft, dr 3440 ft.

MARION COUNTY—Deitrick et al, Dalke 1, nw se 11-19-1e, spd and sd.

RICE COUNTY—Slick et al, Orth 1, se se ne, 27-18-10w, dr 1325 ft.

McPHERSON COUNTY — Simmons-Canary Krehbiel 1, 33-18-1w, dr 1985 ft.

CHASE COUNTY—Ryan et al, Lipps 1, c se sw, 25-18-6e, dr 410 ft.

ELLSWORTH COUNTY—Slick et al, Dreford 1, sw nw, 7-17-10w, ru.

McPHERSON COUNTY — Sidwell et al, Nichols 1, ne nw nw, 28-17-1w, rig.

ELLSWORTH COUNTY—Raymond Gear & Hannah, Kroboth 1, se nw, 12-15-10w, spd and sd.

GRAHAM COUNTY — Schleimeyer et al, Smith 1, se c, 24-8-25w, ru.

SHERIDAN COUNTY — Flo et al, Shoemaker 1, se sw sw, 27-7-26w, sd 4520 ft.

PHILLIPS COUNTY—Hall et al, Donaldson 1, c ne ne, 25-5-18w, T. congl. 3365 ft, S.O. 3375 ft, td 3385 ft, fsh bit.

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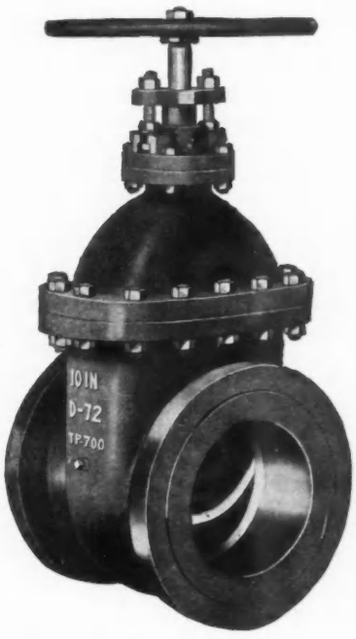

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EAST CENTRAL TEXAS

Water Production Amounts to 5000 Barrels Daily From 81 Wells. River Drilling Ban Off.

H. H. KING, *Staff Representative, Fort Worth, Texas*

East Texas Completion Rush Expected to Continue

Tyler, Texas, June 10.—Continuation of the current high rate of completions in the East Texas field where the average has been above 20 new wells daily for months is assured by the staking of 156 new locations during the week ending June 10. Completions during this same seven-day period amounted to 154 flowing wells.

Included in the usual large number of big wells added in the Longview section last week was Central Drilling Company's Castleberry 1, located on 4.3-acre site offsetting a dry hole drilled several months ago by Columbia Oil & Gas Company's Castleberry 1. The former logged broken sand at 3675-90 and Georgetown lime at 3690-92 feet, and flowed 140 barrels of oil per hour via one-inch choke. The offset failure quit in Georgetown lime at 3684 feet after shooting the horizon that should have yielded production, but found the sand missing, as was the case with Arkansas Fuel Oil Company's Castleberry 2, an east offset.

Magnolia Petroleum Company's Lanie Graves 1, located on south line of the M. Irwin Survey, Upshur County, and an outpost producer offsetting Simms Oil Company and Frank Buttram's Nicholson 800-acre lease, gauged 120 barrels of oil per hour via one-inch choke on tubing from sand at 3606-21 feet. It is bottomed at 3301 feet below sea level, and recorded a flowing pressure of 50 pounds, with a closed in rock pressure of 250 pounds. Faith Oil Corporation's E. H. Brawley 1, three-quarters of a mile to the northwest and on the south line of the J. Crouch Survey, was preparing to test late last week in sand reported at 3653-3662 feet, or 3321 feet below sea level. On the northeast end of the field, Pennsylvania Oil Refining Company's M. Bonner 1, Jas. McRae Survey, flowed 61 barrels in 15 minutes via 3/16-inch choke from broken sand at 3571-89 feet. H. J. Allen et al are having difficulty in making a producer of Bonner 1, a west offset, after shooting with 100 quarts at 3568-83 feet. The latter was drilled to 3296 feet below sea level.

Errors in Sand Thicknesses

Recorded sand thickness of wells in the field are often actually much less when the horizon is cored and an analysis is made of the recoveries. This is illustrated by a typical well drilled in the Gladewater area, Gregg County, and known as Shell Petroleum Corporation's Jas. Moore 9, which cored red beds at 3525-33 feet and first oil sand at 3533-44 feet, followed by a layer of red shale at 3544-53, then the second, or lower sand at 3553-62 feet. The hole is bottomed at a minus depth of 3285 feet. Total sand penetration aggregated 20 feet. A string of taper tubing, consisting of 2505 feet of one-inch and 1026 feet of 1¼-inch pipe, was installed, resulting in an initial flow of 15 barrels of oil during first 30-minute gauge.

Broken formation somewhat different was cored on the east edge of the structure by Magnolia Petroleum Company's H. P. Hale 1, which provided a slight extension to the northeast Kilgore area, with an initial flow of 53 barrels oil during five-minute gauge via one-inch choke on two-inch tubing and open four-inch flow line on casing. This well logged cap rock at 3550-51 feet, followed by two feet of coarse gravel, then oil sand at 3553-65 feet. Sand and ash was cored at 3565-70 feet, then 15 feet of black shale to its total depth of 3585 feet. The well registered 75 pounds flowing pressure, and 270 pounds closed in pressure.

Injunction Is Granted Against Tyler Pipe Line

Tyler, Texas, June 10.—A temporary injunction was authorized by Federal Judge Randolph Bryant June 9 restraining the Tyler Pipe Line Company against violating proration rules in the East Texas field in the event the Texas Railroad Commission, the plaintiff, offered evidence to substantiate alleged excess runs from well connections.

The above carrier was given a temporary injunction by Judge Bryant May 28 that restrains the commission from interference with lawful operations of the company, and the order is to remain in effect despite the cross action suit.

An examination of the Tyler Pipe Line Company's books relating to crude receipts and deliveries from the field by respresentatives of the commission was in process when the company gained such action in federal court.

Murchison-Golding Sell East Texas Holdings

Tyler, Texas, June 10.—The East Texas holdings of the Golding-Murchison Oil Company, Dallas, aggregating about 1500 proven acres and 50 wells, have been sold to the American Liberty Oil Company, a Delaware corporation organized lately by a group of Chicago financiers to acquire and develop the above properties according to Clint W. Murchison, president of the former concern.

The consideration involved was not made public, but the deal is on a deferred payment plan, with cash payments due every 60 days.

Murchison and Dudley S. Golding, principal owners of the Golding-Murchison Oil Company, are to be represented on the board of directors of the new concern with three members, and will constinue to operate the properties for the Chicago group until all contracted payments are concluded. The Golding-Murchison Oil Company has dissolved since the consummation of the above deal.

The American-Liberty Oil Company was granted permit to operate in Texas June 1 with a capital stock of 1000 shares of no-par value, and for which $50,000 was paid in, according to records on file at Austin.

The Tyler Pipe Line Company, which operates an eight-inch line from the East Texas field to a refinery and car rack at Tyler, is owned by Murchison and associates, but was not included in the deal.

81 East Texas Wells Listed As Making Salt Water

TYLER, Texas. — Faulty measurements of wells and excessive sand penetration are greater factors in aggravating the salt water situation in the East Texas field than the natural advance of the water table upon the west and northwest flanks of the structure. Water production of the 81 wells, making from a fraction of one per cent to 90 per cent water with oil, is probably not in excess of 5000 barrels daily. There is no indication that the water infested area will spread any appreciable extent within the next few months as the proration allowance per well automatically is scaled downward to offset rapid increase in completions, and violatotors of production quotas are gradually being reduced in numbers by the enforcement bodies.

Efforts of many operators to speed up drilling time provides grounds for miscalculations on sand tops and total depths, with the result that guess work is resorted to in many cases in preparing the logs. A number of plugging back jobs have arisen from these oversights allowing the drill to sink below the safe water level.

Drilling of the complete sand body when a few feet would provide the necessary flow of oil and a big margin of safety on bottom hole water continues to be the policy of many operators. During the early stages of development it was possible that proration allowances would be determined by potential flows, thus creating an advantage in building up big initial figures. Use of potentials for allocating allowances has been thrown into the discard months ago as an impossibility, yet many lease owners continue to risk bottom hole water by adhering to the old possibility of maximum penetration in areas known to yield water when the danger zone is approached. Actual surveys have revealed that six feet of sand penetration in most sections of the field will yield a good producer, and not materially alter the average gas-oil ratio. Such surveys are made by re-running the tubing after drilling the sand formation by stages. Some engineers insist that all the sand should be drilled upon original completion in order to share equally with neighbors in oil and gas drainage from all sections of the pay horizon.

Over-stepping of the safe productive limits of the field on water is another contributing source of new water wells, but these are mostly drilled by independents receiving sub-leases on a minor oil payment. Occasionally wells are drilled to a greater depth than would be normally considered immune from bottom hole water, and by careful operations succeed in making profitable producers. A sub-sea depth of more than 3310 feet is generally considered a water hazard, but a number of edge wells are producing from depths ranging down to 3347 feet without making cut oil.

Approximately 50 per cent of all wells making water in the field are producing in excess of 10 per cent cut oil, and some are being operated daily while cutting 90 per cent. There are nine dead wells listed among the group that show water when produced.

Plugging back from bottom hole water, and a few instances for fear of water intrusion, has been tried on 36 wells, and of this number 11 succeeded in getting complete water shutoffs. Woodbine sand conditions in this field are adapted to plugging back operations if any appreciable sand body is available to work with.

Farm Out Water Dangers

Evasion of water troubles to a large extent is to be the policy of a number of the larger companies, and to do so they are "farming out" their edge leases to smaller units for an average of one-fourth over-riding royalty on flowing production and one-eighth royalty on pumping production. Such companies as Shell Petroleum Corporation, Humble Oil & Refining Company, Gulf Production Company and Tidal Oil Company have turned a large volume of acreage in the aggregate on such a basis, with a few sales made for a fixed oil payment. By placing the water disposal burden on the shoulders of the smaller operators taking on subleases the larger companies will be able to forestall their participation in the financing of a community salt water disposal system that must be installed when water makes deep inroads on the structure.

The most interesting water development in the East Texas field lately was furnished late in May when the British-American Oil Producing Company's J. D. Stone 1, located in southeast corner of lease and about center of the M. J. Prue Survey, near the heart of the Joiner area, registered four per cent water while held to its proration allowance. This well was completed one year previous in sand at 3708-3730 feet, with a sub-sea depth of 3298 feet, or normally high above the expected water table. The owner plugged back 15 feet after making sure that a casing leak was not responsible, and temporarily excluded the water. However, a trace of water reappeared last week, with possibilities that it had been trapped in the sand during the plugging back period. Leases to the east of Stone 1 were drained heavily during the open production periods of spring and early summer of 1931, creating a general low pressure area and probably a substantial rise in the water table. Stone 1 is lower structurally than most of the nearby wells, which have escaped water encroachment.

Reservoir pressure in the vicinity of the above Stone lease has built up about 250 pounds within the past year, as illustrated by a series of bomb tests on a well in the northeast corner of the S. A. Selman 67-acre tract, located a short distance to the southeast. Selman 1 recorded a bottom hole pressure of 1034 pounds in June, 1931, but has since recovered to 1279 pounds, with 18 pounds added during the 30-day period prior to the latter reading in May.

The water source on one of three wells that developed fluid several months ago in the northwest part of the F. Cordova Survey, Joiner area, is now believed to be due to a leak in the casing. East Texas Refining Company's Grissom 1 developed 30 per cent water in April while producing from sand at 3726-3748 feet, or 3283 feet below sea level. The hole was plugged back 10 feet, but the well continues to show about six per cent cut oil. A small string of pipe is to be run to try and correct the water intrusion. Gulf Production Company contributed the other two water wells in April. Its W. Shaw 2-A continues to make 3½ per cent B.S.&W. after plugging back two feet from an original total depth of 3310 feet below sea level, while G. G. Turner 7, located on a nearby tract, is credited with yielding 65 per cent B.S.&W. at a sub-sea depth of 3319 feet.

Sun Oil Company's Ed. Barker 1, located on the west edge of the original Kilgore area, Rusk County, has been experimenting with a chemical fluid known as Demulso in combatting water. This well has a sub-sea depth of 3318 feet, and formerly required about 13 hours to flow its daily allowable, but since the introduction of the chemical via the lubricator and also the casing the proration quota is made in about eight hours. The volume of water now ranges from 1.7 to 17 per cent, according to the amount of chemical used. Performance of Barker 1 has varied since reconditioning work began on H. W. Elliott et al's Terrell 1, a south offset.

Three wells drilled on the west edge of the Joiner area and near the danger zone for water in Smith County by Sun Oil Company have been held to a small per-

Water Wells in East Texas Field

GREGG COUNTY

Owner—	Elev.	Producing Horizon	Total Depth	Sub-sea Total Depth	Date Completed	Remarks—
Badgett & Ward, Samples-Holland 1	377	3697-3701	3701	3324	12-11-31	4% bs&w.
F. A. Bates (Harper-Neff) E. T. Cole 1	266	3558-3573	3603	3337	5-29-31	None after pb was 10% bs&w.
Continental Oil Co., C. C. Crews 1	361	3687-3689	3689	3328	5-15-31	Now clear.
C. C. Crews 4	337½	3666-3668½	3674½	3337½	11-13-31	None after pb, was 65% bs&w.
Deep Rock Oil Co., A. Z. Jeffrey 1	434	3745-3751	3751	3317	10-22-31	6% bs&w.
Flanagan Prod. Co. W. B. Walker-Tidal 1	272	3599-3604	3604,	3332	10-18-31	Dead and now pb.
Iowa-Payne Oil Co., W. B. Walker 1	380	3693-3702	3702	3322	6-17-31	18% bs&w by heads.
Magnolia Pet. Co., M. T. Cole 1	262	3584-3586	3586	3324	6-28-31	20% bs&w.
Mazda Oil Corp., M. M. Cotton 1	328	3651-3670	3670	3342	5- 3-31	4 to 6% bs&w.
Octogan Oil Co. (Searight) J. M. Blackman-Shell 1	374	3688-3691	3691	3317	8-21-31	2% bs&w.
Louis Sikes et al, F. E. Stancil 1	406	3683-3718	3718	3312	9-28-31	Now clear.
Sinclair Prairie Oil Co., M. T. Cole 1	332	3647-3660	3660	3328	4-26-31	Now clear.
M. T. Cole 5	262	3584-3586	3586	3324	6-30-31	Now clear.
Stanolind-Simms Oil Co., A. W. Miller 1	274	3585-3599	3609	3333	11-15-31	None after pb, was 100% water.
Sun Oil Co., E. L. Walker 1	390	3705-3718	3718	3328	8-21-31	Pumping 81% bs&w.
The Texas Co., J. Waddell 1	391	3661-3684	3684	3293	12-12-31	Now clear, was 5%
Winston Oil Co., Paul Jones 2	368	3657-3660	3684	3316	10- 5-31	None after pb, was 30%.
Wise-Jackson et al, Wash Dickey 1	376	3692-3696	3696	3320	5-12-31	5% bs&w.
Abernathy-T. A. Johnson et al, A. M. Greggston 1	279	3552-3578	3578	3299	4-20-32	60% bs&w on P.
B. M. Hester et al, C. C. Crews 1	350	3681-3685	3685	3335	3-23-32	5% bs&w.
K. E. Merren & Mays, J. S. Dansby 1	401	3701-3712	3712	3311	7-18-31	1% bs&w.
W. Hawkins 2	362	3642-3650	3650	3288	4- 5-32	19% bs&w.
Tidal Oil Co., J. E. Choice 1	380	3694-3702	3702	3322	6-20-31	1 to 20% bs&w.
Universal Oil, Gas & Mining Co., I. Adkins 1	369	3697-3703	3703	3334	3-26-32	10 to 90% bs&w, now pb.
Wainwright-West Oils, Ltd., J. M. Martin 1	419	3743-3745	3745	3326	4-26-32	20% bs&w.
Paul Doran et al, Jackson-Samples 1	425	3743-3749	3749	3324	3-25-32	5% bs&w.

SMITH COUNTY

East Texas Ref. Co., Tyiska 1	523	3837-3845	3845	3322	5-19-31	15% bs&w.
Walter H. Gant-Wagener, Sebe Stone 1	525	38..-3854	3861	3336	1- 8-32	4% bs&w after pb.
J. E. Lucas et al, Negro Church 1	474	3791-3801	3801	3327	12-19-31	10% bs&w.
Sartain 1	473	3794-3796	3807	3334	4-30-32	1% bs&w after pb.
Sinclair Prairie Oil Co., A. S. Jarvis 1-A	389	3698-3699	3710	3321	4-28-31	Now clear after pb, was 70% bs&w.
Mayfield 2-A	540	3843-3851	3851	3311	5-16-31	Now clear.
Mayfield 14-A	468	3778-3789	3789	3321	4-18-32	5% bs&w.
E. E. Moore 1	422	3728-3730	3745	3323	4-15-32	Now clear after pb, was 100% bs&w.
A. Wiley 1	537	3846-3853	3894	3357	5- 5-31	30% bs&w after pb.
Ty-Tex Oil & Dev. Co. et al, S. F. Kay 1	316	3648-3669	3669	3353	11-10-31	Dead, was 70% bs&w on p.
R. M. Weaver Est.-Alexander et al, L. J. Everett 1	296	3612-3617	3617	3321	6-27-31	85% bs&w.

RUSK COUNTY

H. L. Blackstone et al, W. P. Brightwell 1	371	3672-3684	3684	3313	3-29-31	Now clear.
Brown-Wilson et al, M. R. Terrell 1	398	3712-3729	3729	3331	6-22-31	60% bs&w.
Burton Driling Co. et al, E. B. S. Florey 1	350	3720-....	3729	3379	3-15-31	55% bs&w.
Cameron Oil Co., S. P. Warren 1	440	3726-3766	3766	3326	10- 6-31	2% bs&w.
Chas. Carroll & Taylor, J. P. Gibson 1	474	3780-3802	3802	3328	12-17-31	60% bs&w.
E. L. Chapman et al, O. Russell 1	338	3665-3668½	3677	3339	6-23-31	20% bs&w after pb.
Crude Prod. Co., Joe Gipson 1	480	3803-3808	3808	3329	9-16-31	Dead, was 80% bs&w.
Droppleman Drlg. Co., T. C. Warren 1	438	3758-3764	3775	3327	7-22-31	70% bs&w.
East Texas Ref. Co., O. H. Grissom 1	465	3726-3738	3748	3283	6- 6-31	6% bs&w after pb.
Dorcas Wills 1	378	3688-3693	3693	3315	4-25-31	1.8% bs&w.
Dorcas Wills 5	344	3672-3679	3692	3348	5-17-31	Clear after pb.
Dorcas Wills 7	362	3656-3671	3671	3309	5-29-31	Clear.
H. W. Elliott et al, M. R. Terrell 1	428	3752-3755	3764	3336	5- 9-31	pb and testing.
Everts Drlg. Co. et al, P. C. Warren 1	501	3840-3842	3842	3341	12-21-31	3% bs&w.
Goodgame & Eby, W. W. Holland 1	504	3815-3818	3832	3328	1- 4-32	35% bs&w after pb and on pump.
Gulf Production Co., F. Birdsong 1	325	3557-3608	3661	3336	4- 8-31	Clear after pb.
W. Shaw 2-A	440	3738-3748	3750	3310	8- 1-31	3½% bs&w after pb.
G. C. Turner 7	...	.....	....	3319	10-27-31	65% bs&w.
Geo. Guthrie et al, I. P. Perry 1	396	3700-3706	3706	3310	7-29-31	50% bs&w.
Humble O&R Co., L. D. Crim 7	366	3630-3645	3682	3316	4- 2-31	Clear after pb, was 5% bs&w.
L. D. Crim 16	338	3610-3642	3642	3304	4-20-31	Clear, was 8% bs&w.
Oscar Kemp & Fisher, Williams 1	523	3840-3850	3870	3347	.....	pb and shot with lots w.
K. & P. Oil Co., McNealy 1	380	3647-....	3720	3340	4-25-31	Clear after pb, was 8% bs&w.
Magnolia Pet. Co., E. F. Florey 1	335	3641-3647	3661	3312	4-10-31	18% bs&w after pb.
W. B. Kee 1	473	3785-3786	3786½	3313½	4-29-32	Clear after pb, was 98% bs&w.
C. L. McMahon et al, S. B. Wills 1	360	3657-3663	3663	3303	4-27-31	18% bs&w.
M. & G. Oil Co., L. DeGuerin 1	518	3823-3828	3828	3310	11-28-31	Dead, was 50% bs&w.
Kee-Moore 1	494	3814-3816	3819	3325	11-15-31	Dead, was 50% bs&w.
Minor 1	499	3810-3816	3816	3317	10-31-31	3% bs&w.
M. L. Priddy 1	505	3817-3817½	3823	3318	10- 3-31	pb and shut in, was 50% bs&w.
Teague 1	496	3809-3815	3815	3319	12- 3-31	3% bs&w.
Mercury Pet. Co., et al, Sam Warren 1	435	3748-3753	3753	3318	2- 3-32	2% bs&w.
Arch Page et al, J. D. Florey 1	492	3815-3816	3817	3325	1-13-32	Dead after pb, was 30%
Albert Plummer et al, J. R. Beall 1	385	3699-3702	3702	3317	7-21-31	3% bs&w.

Sun Oil Co.,							M. Risinger et al,				
J. J. Denton 1	392	3687-3695	3695	3303	6- 5-31	7% bs&w.	M. H. Barton 1	494	3808-3812	3812	3318	12- 8-31	15% bs&w.
J. J. Denton 2	404	3708-3712	3712	3308	9- 9-31	8% bs&w.	Royalty Pet.Corp. (Dearing),						
R. L. Henson 1	400	3711½-3714½	3714½	3314½	7-19-31	Now clear.	T. H. Goforth 1	484	3771-37..	3787	3303	6-15-31	4% bs&w after pb.
T. A. Johnston & Owens,							Frank Russell et al,						
J. Jackson 1	443	37..-3749	3769	3326	4-28-32	pb and no water.	J. S. Powers 1	428	3757-3767	3767	3339	7-29-31	1% bs&w.
Steve Ryan (was Gulf Prod. Co.),							Shell Pet. Corp.,						
G. A. Turner 1	506	3826-3829	3829	3323	1-14-32	35% bs&w.	Dorcas Wills 1	349	3659-3661	3661	3312	4-21-31	Clear, was 3% bs&w.
							Dorcas Wills 4	320	3637-3642	3642	3322	10-28-31	11% bs&w.
			UPSHUR COUNTY				Snowden & McSweeney Co.,						
Alma Pet. Corp.,							Roy Laird 1	380	3597-3679	3687	3307	4-14-31	Clear after pb.
J. W. L. Younce 1	349	3630-3668	3668	3319	8-23-31	4% bs&w by heads.	Sinclair Prairie Oil Co.,						
Arcadia Ref. Co.-Dumas,							W. D. Kimey 21	335	3616-3630	3666	3331	1-27-32	Clear after pb.
A. O. Phillips 1	367	3646-3665	3665	3298	9-17-31	0.8% bs&w.	W. C. Snyder et al,						
H. W. Black-Case et al,							J. H. Stewart 1	406	3710-37..	3734	3328	4- 9-32	Clear, probably pb.
I. M. Burroughs 1	392	3700-3708	3708	3316	12- 4-31	4% bs&w.	Spitler Oil Co.,						
California Pet. Corp.,							Florey-Neal 1	495	3812-3816	3836	3341	2-28-32	Dead after pb, was 15% bs&w.
D. Culpepper 1	439	3742-3761	3761	3322	11-28-31	18% bs&w, to pb.	Stanolind O&G Co.,						
J. W. Clark (Pelican) et al,							C. O. Christian 1	338	3657-3662	3664	3326	7-30-31	2% bs&w.
E. H. Hamilton 1	434	3756-3762	3762	3328	7-30-31	8 to 14% bs&w on P.	R. Christian 1	360	3670-3676	3676	3316	7-30-31	Now clear.
Cranfill-Reynolds Co. et al,							W. H. Smith 1	419	3758-3763	3763	3344	5-31-31	Now clear.
Ni. L. Rash 1	332	3709-3729	3729	3397	1-29-32	50% bs&w by heads.	State Production Co.,						
M. T. Flanagan-C. S. Bazzell-Eslick,							J. C. Gibson 1	464	3789-3792	3792	3328	9-25-31	80% bs&w on pump.
J. H. Thomas 1	270	3575-3585	3618	3348	5-28-32	PB and shut off 60% w.	Sunbeam Oil Co.,						
Galvez Oil Corp.,							W. W. Brandon 1	495	3812-3817	3817	3322	12-17-31	20% bs&w.
Moore 1	415	3690-3721	3721	3306	1- 4-32	4% bs&w.	Sun Oil Co.,						
Glasscock Bros. et al,							Ed. Barker 1	430	3746-3748	3748	3318	5- 9-31	2 to 17% bs&w.
East Mt. School 1	446	3753-3759	3759	3313	3- 6-32	Dead, was 25% bs&w.	A. M. Sutton-Nivla Oil Corp.,						
Sam Dorfman et al (was Humble),							M. Wilson 1	474	3786-3788	3795	3321	9-16-31	15 to 25% bs&w after pb.
Eva O'Byrne 1-C	420	3725-3735	3735	3315	10-12-31	0.3% bs&w by heads.	The Texas Co.,						
Humble O&R Co.,							W. T. Chappell 2	412	3732-3734	3734	3322	12-15-31	90% bs&w.
D. C. Shelton 1	426	3727-3732	3742	3316	12-11-31	0.5% bs&w by heads.	Tarman Oil Co.,						
Jay-Kay Oil Co.,							W. P. Brightwell 1-A	367	3640-3663	3723	3356	4-26-31	Clear after pb.
Victory 1	375	3679-3686	3686	3311	11-25-31	6% bs&w.	W. P. Brightwell 3-B	369	3635-3641	3641	3272	5-24-31	Clear.
J. A. Johnson et al,							Ward Oil Corp., et al,						
John Hargraves 1	406	3709-3712	3712	3306	10-30-31	4% bs&w by heads.	J. A. Beall 3	415	3725-3727	3727	3312	1-18-32	4% bs&w.
J. F. Murphy et al,							British-American Oil Prod. Co.,						
A. J. Watkins 1	407	3703-3719	3719	3312	9- 8-31	Now clear.	J. D. Stone 1	432	3708-3715	3730	3298	5-24-31	Clear after pb, was 4% bs&w.
W. H. Peckham Oil Co.,							McLester Drlg. Co.,						
J. W. Free (10-ac) 1	431	3740-3750	3750	3319	11-30-31	25% bs&w.	J. Johnson 1	482	3782-3786½	3786½	3304½	4-10-32	Dead, was cutting 50% bs&w.
W. F. Sorrels & Owens,							Stewart & Duffey,						
A. N. Brawley 1	438	3746-3753	3753	3315	2- 9-32	0.6% bs&w by heads.	Florence Gibson 1	525	3842-3844	3844	3319	2- 1-32	35% bs&w.
M. Taxman et al,							Stanolind-Pure Oil Co.,						
A. Callahan 1	408	3704-3719	3724	3316	7- 4-31	30% bs&w after pb & p.	Ras Lacey 1	318	3604-3619	3666	3348	2-11-32	pb as gasser.
Trico Oil Co.,													
A. D. Adkins 1	456	3749-3765	3765	3309	10-29-31	0.4% bs&w.							
East Mt. School 1	444	3736-3747	3766	3322	12-16-31	7% bs&w after pb.							

centage of water by retarding the flow when taking the daily proration quota at rate of 10 barrels per hour, more or less. This method of withdrawal has been proven to be the safest policy in handling wells making cut oil, or those that are apt to develop water. The company also has a policy of drilling only to the top of the oil sand in developing its edge leases, with extra precaution taken on hole measurements in order to be certain of the data at hand.

Oil and gas drainage has been comparatively less per acre along the water edges of the East Texas field than any other section, owing to fear of drawing in the water. K. E. Merren-Mays et al recently added W. Hawkins 2 and Sarah Dansby 1, both located in the W. P. Chism Survey, southwestern Gregg County, to the water well list, although both were considered within the safety zone on water. At last reports both wells were shut in.

Final Ruling Against Patent Claim to Sabine River Bed

Austin, Texas, June 9.—Ruling by the Supreme Court today against a motion for rehearing requested by Harry Dolan in his suit against J. H. Walker, State Land Commissioner, will permit the immediate development of the Sabine River bed by the Rhodes Drilling Company, successful bidder for the state lands there.

When the bid was awarded, it was contingent upon the denial of this motion. Harry Dolan and others had contended that this was school land on which they had applied for a patent, and attempted to mandamus the land commissioner to grant them the right to drill this property.

Baxter Basin Well Has Sundance as Objective

Rock Springs, Wyo.—Wyoming-California Petroleum Company is drilling the first test to the Sundance sand to be attempted in the South Baxter Basin field in Sweetwater County, southwestern Wyoming. At last report the well was below 3400 feet; it is on Section 23-19-104, in the Aspen Mountain district. The Sundance has been proved for a little oil in the North Baxter Basin field, but the present operation is the first to be started with that sand as the objective in the southern sector.

East Texas Proration Hearing at Austin June 21

Austin, Texas.—The Texas Railroad Commission has announced a hearing on the East Texas field to be held in Austin on Tuesday, June 21.

At this time evidence will be heard on which a new order will be issued effective July 1, when the present order expires.

Revision of proration allowables is called for June 16, under the present order setting the field allowable at 325,000 barrels. It is expected that the present per-well allowable will be reduced from 54 to 52 barrels, as completions at the present time average slightly more than 20 per day, and approximately 6000 wells were producing when the present allowable was set on June 1.

Central East Texas Field Developments

Completions

Company, Well and Location—	Initial Production Bbls.	Depth
JOINER AREA—		
Arcadia Ref. Co., J. R. Green (57-ac) 3-A	7500	3801
P. M. Biddison-Phoenix Crude Pet. Co., J. W. Wheelis (15-ac) 3	9200	3800
British-American Oil Prod. Co., U. Cooper-Mayfield (45-ac) 3	11,000	3637
Champlin & Bass, Inc., Pinkston (10-ac) 1	8500	3644
Deep Rock Oil Co.-Amerada, J. T. Stovall (193-ac) 3	9000	3665
Everts Drilling Co., Joe Lee (44-ac) 2	7000	3738
Golding-Murchison Oil Co., L. J. Pinkston (86½-ac) 3-A	7200	3688
Gulf Prod. Co., Mayfield (101-ac) 5-C	8400	3691
S. B. Stone (107.58-ac) 5	8000	3801
G. G. Turner (312-ac) 10	6500	3728
Humble O&R Co., J. D. Florey (89-ac) 3	9500	3746
W. B. Key (25-ac) 5	10,000	3706
S. A. Plowman (228.5-ac) 12-A	9600	3746
R. E. L. Silvey (115-ac) 9-A	6000	3711
R. E. L. Silvey (209-ac) 6-B	8500	3746
J. E. B. Sneed (104-ac) 4	9000	3762
Virginia Turner (146-ac) 3-A	7200	3740
H. L. Hunt et al, D. Bradford (Blk. 4) 1-D	200	3650
Mrs. V. E. Reid (120-ac) 4	1500	3695
I. R. Thrash (58-ac) 5	10,500	3777
T. A. Johnson-Owens et al, J. Jackson (50-ac) 3	8000	3756
Magnolia Pet. Co., J. W. Flanagan (36.67-ac) 3	9600	3619
T. B. McDonald-Shoreline Oil Co., C. B. Hannah (11-ac) 1	10,000	3657
M. G. B. Oil Co., H. L. Griffin (85-ac) 4	4500	3671
Mid-Kansas O&G Co., M. M. Cross (814-ac) 11	7000	3628
M. M. Cross (814-ac) 12	1500	3662
H. C. & G. W. Burton (100-ac) 3	7000	3672
Olsan Bros., Inc., & Johnson, J. S. Powers (131-ac) 5	7200	3695
Pitzer & West, L. S. Sartain (20-ac) 1	9000	3804
W. L. Sessions et al, Sebe Stone (50-ac) 2	6500	3823
Sinclair Prairie Oil Co., A. S. Jarvis (256-ac) 12-C	10,000	3698
D. Ledbetter 5	9000	3685
Mayfield (374-ac) 11-A	9200	3785
Mayfield (374-ac) 13-A	9000	3787
Mayfield (374-ac) 18-A	9500	3841
Mayfield (374-ac) 19-A	8500	3804
E. E. Moore (103-ac) 3	7800	3797
Smith-Guerin-King (Bailey Gaunce) Cook (20-ac 1	11,000	3700
Sanolind-Pure Oil Co., R. A. Moores (251-ac) 7	8500	3645
W. H. Siler (949.6-ac) 6	8000	3612
Sun Oil Co., Mrs. A. V. Ritch (54-ac) 3-B	5500	3715
H. A. Pace (41¼-ac) 2-A	8000	3715
Texas Jersey Oil Co., C. B. Hannah (6-ac) 1	6500	3633
Tidal Oil Co., Ras Pool (65-ac) 5	5000	3760
Ward Oil Corp., E. S. Thrash (152-ac) 11	7000	3790
KILGORE AREA—		
J. S. Abercrombie-Harrison Oil Co., Cantrell 9	14,000	3664
J. G. Beard et al, E. Muckelroy (19-ac) 2	7000	3618
Canadian Oil Producing Co., S. Hilburn (10-ac) 2	12,000	3675
A. C. Deck (Kinsey-Trimble) Grif Davis (4-ac) 1	7000	3715
Golding-Murchison Oil Co., L. P. Griffin (37½-ac) 6	13,000	3602
Gulf Prod. Co., H. C. Alexander 9	8000	3532
M. T. Cole (160-ac) 9	8500	3545
G. W. Culver (244-ac) 11	7000	3559
S. Hilburn (200-ac) 21	5500	3703
S. Hilburn (200-ac) 23	9500	3550
A. Nichols (50-ac) 2	3000	3669
R. H. Still (189-ac) 3	7200	3548
R. H. Still (189-ac) 4	5000	3583
Humble O&R Co., L. D. Crim (628-ac) 55	12,000	3707
J. E. Sexton (70-ac) 3-A	9000	3748
J. T. Sexton (310-ac) 4-A	4000	3724
Ed. M. Jones et al, S. B. Wills (41-ac) 3	11,000	3649
Louisiana Oil Ref. Corp., H. Mayfield (40-ac) 2	300	3717
Magnolia Pet. Co., H. P. Haley (50-ac) 1	10,000	3585
Laird & Crim (71-ac) 3	12,000	3567
F. W. O'Brien et al, W. Daniels (20-ac) 3-A	15,000	3571
Republic Prod. Co., C. E. Christian (50-ac) 4	8500	3639
Sells Petroleum, Inc., E. Sibley (24-ac) 3	14,000	3623
Sinclair Prairie Oil Co., S. G. Andrews (200-ac) 6	8000	3477
A. A. King (290-ac) 19-A	10,000	3490
A. A. King (290-ac) 25-A	9000	3495
A. A. King (111-ac) 5-B Tract No. 2	15,000	3465
A. A. King (147-ac) 4-B Tract No. 5	9000	3460
Stanolind O&G Co.-Simms Oil Co., E. L. Walker (60-ac) 1-B	13,000	3571
Sun Oil Co., G. Reese (124-ac) 4	12,000	3715
M. Strong (50-ac) 4	10,000	3637
The Texas Co., R. B. Walls (104-ac) 5	9500	3707
Tidal Oil Co., E. R. D. Bivins (200-ac) 9	10,000	3660
E. R. D. Bivins (200-ac) 12	4000	3650
Wm. Jernigan (40-ac) 3	10,000	3684
C. G. Strong, (113-ac) 5	12,000	3645
Weaver-Crim Oil Corp., F. Bean (16-ac) 1-B	2500	3737
Winston Oil Co., Paul Jones 5	11,000	3697
LONGVIEW AREA—		
Arkansas Fuel Oil Co., J. W. Harrison 3-B	8500	3607
Taylor Lee (52.1-ac) 2-A	9000	3593
R. S. McKinley (106-ac) 4-A	7200	3619
E. M. Whatley (43.91-ac) 1	10,000	3552
Atlantic Oil Prod. Co., A. V. Bacle (30-ac) 4	12,000	3656
Joe Bander (83.9-ac) 6	10,500	3658
Ethel Burnside (204-ac) 7-A	10,000	3549
W. T. Burnside (231-ac) 7-B	6500	3528
W. P. Duncan (154-ac) 8	9600	3674
J. J. Fuller (50-ac) 4	8500	3734
T. H. Harris (91-ac) 5	10,000	3546
J. C. Judge (520-ac) 2	13,500	3523
J. C. McKinley (31-ac) 5	8500	3660
J. M. Moore (456-ac) 4	11,000	3546
Atlantic-Sun Oil Co., Wm. Anderson (83-ac) 4	9000	3523
Atlantic-J. K. Wadley, T. W. Lee (110-ac) 7	8600	3647
Mose Turner (161.57-ac) 8	11,000	3614
Bay Oil Corp., Wm. Wheeler (41-ac) 3	15,000	3588
Bristow & Rowan, W. A. Moore (28-ac) 4	11,000	3568
Cox & Jake Hamon, Fee (73-ac) 9	10,500	3559
Cox-Hamon & Williams, C. Rodden (23-ac) 2	11,000	3602
Danciger O&R Co., T. B. Stinchcomb (84-ac) 4	9600	3706
Devonian Oil Co., L. C. Ingram (80-ac) 6	12,000	3556
E. E. Eslick-C. S. Bazzell & Flanagan, J. H. Thomas 1	1200	3618
Gulf Prod. Co., A. V. Bacle (69-ac) 4	9800	3650
M. O. Sheppard (300-ac) 9	8500	3512
Humble O&R Co., W. W. Holland (245-ac) 10	6500	3629
G. W. Johnson (102-ac) 7	8000	3694
Island Oil Co., M. Bonner (24-ac) 2	7200	3683
Kewanee O&G Co., Fee (168-ac) 6	12,000	3582
Lucey Pet. Corp., R. Christian (32-ac) 6	9000	3636
Magnolia Pet. Co., E. H. Brawley (80-ac) 5	12,000	3532
F. M. Fonville (50-ac) 4	11,000	3569
H. L. Foster (100-ac) 7	8500	3543
Lanie Graves (23-ac) 1	8500	3621
H. B. Ziegler (120-ac) 7	10,500	3466
Irene Ziegler (83-ac) 3	9000	3508
Margay Oil Co., R. Corbin (55-ac) 5	15,000	3560
Marine Prod. Co., W. H. York (41-ac) 3	13,000	3589
J. H. Massie et al, J. W. Orr (36¼-ac) 4	15,000	3626
W. A. McCommas et al, Geo. Anderson (3¼-ac) 2	9600	3554
F. W. Merrick, Inc.-Ward Oil Corp., Nicholson	6500	3717
Pennsylvania Oil Ref. Co., M. Bonner (18-ac) 1	10,000	3589
Petroleum Finance Corp., A. M. Kinsell (23-ac) 2	8500	3619
Pilot Oil Co., T. B. Harris (91-ac) 7	9000	3498
Red Star Oil Co., W. D. Anderson (7½-ac) 3	8000	3623
Roeser-Pendleton, Inc., W. R. Nicholson (94-ac) 4-A	2000	3527
Selby O&G Co.-Lewis Prod. Co., Ingram (80-ac) 6	14,000	3551
Shell Pet. Corp., C. C. Slaton (123.65-ac) 6	10,500	3633
Eddie Showers & W. A. Moncrief, A. V. Bacle (5½-ac) 1-A	9000	3644
A. V. Bacle 1-B	8500	3610
Louis Sikes et al, H. W. Moyers (25-ac) 2	7000	3648
Simms Oil Co.-Frank Buttram, W. R. Nicholson (800-ac) 6	6500	3633
Stanolind O&G Co.-Simms, O. J. Albright (90-ac) 5	7800	3597
J. J. Flewellen (200-ac) 6-A	9600	3671
J. J. Flewellen (374-ac) 12-B	7000	3654
Stroube & Stroube, J. C. Bumpas (33-ac) 2	12,000	3590
Sun Oil Co., J. W. Akin (166.2-ac) 8	9600	3604
V. L. Loden (27.3-ac) 2	4500	3727
Mose Thomas (79-ac) 2	7500	3558
The Texas Co., H. L. Phillips (136-ac) 2	8500	3707
Tidal Oil Co., Arch Davis (130-ac) 7	13,000	3550
Lade Devernia (270-ac) 8	12,000	3592
J. A. Woods et al, A. J. Sanders (45-ac) 4	9600	3649
Yount-Lee Oil Co., J. C. McKinley 1-D	5500	3604
B. E. Rodden (85-ac) 3	9000	3602
VAN FIELD—		
Pure Oil Co., W. F. Swain (40-ac) 5	500	2958

NORTH and WEST TEXAS

Panhandle Field Given Important Extension. Two Wildcats Will Seek Ordovician Production.

H. H. KING, *Staff Representative, Fort Worth, Texas*

Two West Texas Deep Tests About Ready to Start

Fort Worth, Texas.—The Ordovician lime horizon, which has established a production record at the 8500-9000-foot level in the Big Lake field, West Texas, is reported to be the goal of a deep wildcat test to be drilled in west central Cottle County by Darby Petroleum Company, Merry Brothers and V. C. Perini, Jr. These operators have assembled a block of about 30,000 acres centering on what is called the Narcisso structure, and are to award contract for the drilling of a 6500-foot test to try for production in the Ordovician lime at an early date. Tentative location has been made in Section 41, Block B, J. H. Stephens Survey, on the Swenson ranch. The structure has been extensively core drilled, and also subjected to geophysical examination.

The most interesting Ordovician lime test in West Texas is that of Stanolind Oil & Gas Company, Continental Oil Company, The California Company, Sun Oil Company and others in Crockett County. These operators have pooled 4000 acres, and will start drilling shortly on the J. S. Todd ranch, having made location at the center of the northeast corner of Section 67, Block U-V, G. C. & S. F. Ry Survey. Noble Drilling Company has been awarded a 7500-foot contract on a footage basis, and day scale will be paid for drilling below the above depth. The unit members will furnish derrick, casing, fuel, water and mud. The fuel will be obtained from the 18,000,000 cubic foot dry sulphur gasser completed several weeks ago about 1½ miles east of the deep test site in lime at 1271-73 feet, with a surface elevation of 2568 feet.

Gray County Production Extended to Wheeler County

Amarillo, Texas. — Western Wheeler County, Texas Panhandle, is in line to particiapte in oil production as result of Mid-Kansas Oil & Gas Company's semi-wildcat test on the L. H. Webb 160-acre tract, comprising the northeast quarter of Section 61, Block 25, H.&G.N. survey, Gray County, scoring an initial flow of 300 barrels from lime at 2452-2505 feet. This well extended the oil area in eastern Gray County about one-half mile to the east, and has resulted in a west offset being started by Tedesco Oil Company and M. R. Travis on their Webb "B" lease. The above outpost well flowed 10 barrels per hour natural, and when shot with 120 quarts at 2458-95 feet increased to 160 barrels oil during first 12 hours. The hole was drilled to sea level depth.

Deepening of old wells in Gray County continues on a large scale with varying results. The Texas Company's M. B. Davis 4, located in NW Section 8, Block 1, A.C.H.&B. survey, swabbed 960 barrels daily when deepened from 2702 to 2762 feet. Humble Oil & Refining Company's Wm. Jackson 1, which had an initial rating of 2440 barrels natural in granite wash at 3025-36 feet in September, 1929, then declined to a small output, has restored its flow to 225 barrels daily after deepening. It was carried into water at 3125-38 feet, and plugged back.

The Texas Company's J. E. Wright 7, located in the northeast extension area of the Finley-Brown pool, Gray County, swabbed 912 barrels initial from broken granite wash at 2755-2840 feet, with a surface elevation of 2836 feet. It is one of the trio of offsets drilled as result of C. Pulse et al having widened the oil area with a big well. Phillips Petroleum Company's Wright-Woods 6 made 375 barrels oil at 2870 feet, and Continental Oil Company's Wright 1-A, a west offset to the extension well, has cemented pipe above the oil horizon.

Ventura Deep Test Going Below 9600 Feet

Ventura, Calif.—Associated Oil Company has no definite testing point in view in Lloyd 83, deepest well yet drilled in the Ventura Avenue field, and may stop at some point below 9600 feet before making a production test. The well is now drilling in shale and oil sand at 9535 feet. Some of the cores taken from below 9400 feet showed a rich oil sand, while the shale has been free from questionable streaks which usually indicate water.

North and West Texas Field Developments

Completions

NORTH TEXAS

Company, Well and Location—	Initial Production Bbls.	Depth
ARCHER COUNTY—		
O. T. Anderson & Daubert, Abercrombie 1	210	1212
Abercrombie 2	10	1218
L. T. Burns & C. B. Long, Logan 2	*	1232
Cable Oil Co., Pruett-S. Webb 1..	100	729
Continental Oil Co.,Falls County 3-D	150	1109
Falls County 4-D	60	1106
Deep Oil Dev. Co.-Lindsay Drlg. Co., Wilson (Lse. 5) 1	200	2244
Houston & Houston, Perry Browning 1	*	463
C. E. Jones et al, Thomas 2	6	655
King Royalty Co., Abercrombie 1..	*	1259
Lamont Drlg. Co., Pruett-S. Webb 1	310	701
C. E. Lutz et al, Logan 1	12	1228
C. E. McCutcheon et al, Fee-Perkins 1	*	1763
Moran & Wotola, Ikard 1	*	1065
J. J. Perkins & Cullum, Abercrombie 1	15	1220
Abercrombie 2	13	1232
A. E. Stout et al, Wilson 1	*	2500
The Texas Co., Young 1-B	*	1301
FOARD COUNTY—		
A. W. Phillips et al, Owens 1	*	2000
WICHITA COUNTY—		
G. W. Cooper et al, Waggoner Bros. 21	*	1591
F. C. Baldwin et al, Dcbie-Overall 6	*	610
Schlaffke-Blair & Walton, Honaker 2	*	1352
YOUNG COUNTY—		
Cable Oil Co., Williams 2	25	578
W. R. Cooper et al, Wilson 1, Sec. 162	*	1015
Henry Dyer et al, Allen 1	235	2241
L. P. Gaffney et al, Lowe 1, Sec. 2244	*	738
Hamilton & Lee, Jeffreys 1, Sec. 41	*	820
Klelner & Riggs, Larrimore 12-A, Sec. 2246	*	728
A. Z. Kouri et al, McClatchey 1, Sec. 1476	*	943
Producers Tool & Supply Co., Finch 9, Sec. 31	30	723
W. S. Randall et al, Kisinger 2	15	2605
Regal Oil Co., Rushing 1-A, Sec. 3401	*	902
A. H. & S. P. Schmitt et al, Belknap 8	2	665
Spann & McClung, Stewart 2	*	635
Sid Swink et al, Keith 3, Sec. 267	20	714
Geo. W. Terrell et al, Larrimore 6, Sec. 253	15	675
Larrimore 7, Sec. 253	*	689
The Texas Co., Kunkel 1, Sec. 2447	*	1009
D. L. Wolfe et al, Cole 1	*	906
C. C. Williams et al, Shatto 1, Sec. 1916	*	535
Keith 2, Sec. 267	*	750
Wooten-Reed & Iron Mt. Oil Co., Vinson 1, Sec. 1448	*	904

TEXAS PANHANDLE

Company, Well and Location	Initial Production Bbls.	Depth
GRAY COUNTY—		
Mid-Kansas O&G Co., L. H. Webb 1	300	2505
Shamrock O&G Co., J. M. Saunders-Big Gray 3	400	3113
Skelly Oil Co., Schafer-East 8	250	3280
Schafer-East 9	300	3265
The Texas Co., J. E. Wright 7	900	2840
MOORE COUNTY—		
Sunset Oil Co., B. Dore-Gulf 1	¶14	3651
POTTER COUNTY—		
Red River Gas Co., Bivins 7-A	¶34½	2547

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
GLASSCOCK COUNTY—		
Humble O&R Co., C. H. Arrington 2	550	2289
HOWARD COUNTY—		
Merrick & Lamb, Otis Chalk 3-A..	175	1770
PECOS COUNTY—		
Cardinal Oil Co., Tippett-Shell 2-G	*	415
Corvette Oil Corp., H. Monroe 10..	35	501

NEW MEXICO

Company, Well and Location	Initial Production Bbls.	Depth
HOBBS FIELD—		
Amerada Pet. Corp., B. Hardin 1..	10,000	4158
Midwest Ref. Co., Terry (nw¼ Sec. 10-19-38) 8	820	4175

Permits for Texas Wells

ARCHER COUNTY—C. B. Long, Wichita Falls, L. W. McCrory, 45, 1S, B 108, Amer. Trib. sur, 170 ft w and 150 ft from s line of E½. Fain-McGaha Oil Corp., Wichita Falls, J. W. Campbell, 30, 1, DCSL sur, 150 ft from s and w lines. L. T. Burns, Wichita Falls, R. H. Bushy, 120, 1, 2460 TE&L sur, 980 ft from e and 1425 ft from s line. Geo. L. Pace, Dallas, Texas, F. C. Green, 160, 5, J. Levins sur, 1000 ft from n and 150 ft from w line. Continental Oil Co., Fort Worth, Falls CSL 51, D5, B 13, FCSL sur, 200 ft from n and 150 ft from e line. L. T. Burns, Wichita Falls, J. E. Birdwell, 85 1, 2418, TE&L sur, 450 ft from n and 150 ft from w line; L. F. Wilson, 97, 14 B 75, Amer. Trib. sur. 330 ft from s and e lines. Fain McGaha Oil Corp., Wichita Falls, Fee B, 60, 1, Blk 3, DCSL No. 3 sur, 896 ft from w and 750 ft from n line. Consolidated Oil Co., Wichita Falls, L. H. Tarr, 70, 1, s 23, WVFL sur, 150 ft from n and w lines. C. B. Bailey, Wichita Falls, H. F. Harmel, 40, 1, B 24, DCSL No. 4 sur, se corner. United Prod. Corp., Wichita Falls, L. W. McCrory, 120, 1, B 114, Amer. Trib. sur, 150 ft from w and 1350 ft from n line. Coble Oil Co., Wichita Falls, Hasson, 40, 1, I&GN sur, 1500 ft from w and 2483 ft from n line. Petroleum Prod. Co., Wichita Falls, J. W. Campbell, 66, 1, B 1, DCSL No. 3 sur, 450 ft from n and 150 ft from w line. White, Duncan, Holt & Tedford, Wichita Falls, S. Webb, 40, 2, B 1, I&GN sur, 150 ft from e and 750 ft from s line.

ANDERSON COUNTY—J. W. Frazier, H. L. Hudson, 198, 1, M. Rionda sur, 200 ft from s and w lines.

BROWN COUNTY—Maxwell-Park Drilling Co., Coleman, Texas, Y. C. Jones, 40, 2, S 19, H. Kaber sur, 150 ft from n and w lines. Red River Oil Co., Wichita Falls, A. J. Newlin, 80, 3, No. 622, Stubblefield sur, 450 ft from w and 750 ft from s line. L. H. Spencer, Dallas, Texas, J. B. Whitehead, 45, 2, B 54, J. Grant sur, 150 ft e line and 50 ft s of No. 1.

BEE COUNTY—Texas Co., Houston, E. Gremmell, 353, 5, Jno. Pace sur, 150 ft from e and 650 ft from s line.

BRAZORIA COUNTY—Texas Co., Houston, W. T. Belcher, 357, 3, H. N. Little sur, 200 ft from nw and 1220 ft from ne line.

BEXAR COUNTY—W. R. Swearingen et al, San Antonio, J. E. Halbardier, 93, 9, No. 57, J. M. F. Perez sur, 750 ft from n and 450 ft from e line. Alamo Natural Gas Co., San Antonio, N. Couth, 284, 1, No. 49, A. Stafford sur, 350 ft from s and 300 ft from w line. Chiquita Oil Co., San Antonio, A. Pieniazek, 200, 2, J. M. Arocha sur, 330 ft from n and e lines.

BANDERA COUNTY—F. A. Brown, Medina, R. B. Watson, 139, 1, No. 70 sur, west central part of lease.

BURLESON COUNTY—Shilo Oil Co., Inc., Somerville, E. M. Bracey, 3, 1, J. Lastly sur, 24 ft from n and 150 ft from e line. J. M. Teague, Caldwell, A. K. Polansky, 158, 1, M. B. Lawrence sur, 469 ft from e and 359 ft from s line.

CALDWELL COUNTY—Bobrose Oil & Refg. Co., Inc., San Antonio, G. C. Walker, 149, 1, S. Seals sur, 320 ft from w and 150 ft from s line. J. T. Callahan, San Antonio, W. H. Callahan, 176, A2, J. R. Miller sur, 1600 ft from w and 670 ft from s line. Geo. C. Sullivan, Luling, W. L. Plimsoll, 32, 1, M. W. Dennis sur, 600 ft from e and 820 ft from s line.

CALLAHAN COUNTY—Hart Bros. & Perry, Baird, E. L. Finley, 80, 1, S 72, Bayland Asy sur, 150 ft from s and w lines. Texacal Oil & Gas Co., Glendale, Calif., J. S. Hart, 40, 7, S 7, D½D Asy. sur, 150 ft from n and e lines. F. W. Stone, Cross Plains, J. A. Barr, 50, 1, B 95, CCSL sur, 150 ft from s and w lines.

DUVAL COUNTY—Aztec Oil & Refg. Co., San Antonio, W. R. Peters, 160, 1, S 322 sur, 1300 ft from w and 2800 ft from s line. R. B. Byrd, San Antonio, P. T. Wright, 126, 1, No. 101 sur, 150 ft from n and w lines. Texas Co., Houston, D. Ruiz, 2187, 1, Sec. 127 sur, 150 ft from nw and ne lines; W. R. Peters, 1920, 1, Sec. 162 sur, 2330 ft from w line and 330 ft n of center line. Magnolia Pet. Co., Dallas, G. Wendt, 120, 1, J. Poitevent sur, 150 ft from s and e lines.

EASTLAND COUNTY—Lone Star Gasoline Co., Dallas, J. J. Butts, 1, S 497, SPRy sur, 660 ft from e and 470 ft from n line.

FORT BEND COUNTY—Gulf Prod. Co., Houston, F. I. Booth, A, 1107, 2, S. Kennedy sur, 571 ft e of No. 1. Humble Oil & Refg. Co., Houston, Rcock-Sharp, A, 469, 5, Jno. Rabb sur, 1000 ft from e and 300 ft from s line; A. P. George, B, 419, 1, Jno. Rabb sur, 328 ft from n and 1980 ft from w line; A. P. George, 200, 4, Jno. Rabb sur, 2980 ft from w and 300 ft from n line.

GREGG COUNTY—M. E. Hodges, Kilgore, G. Martin, 41, 1, M. Van Winkle sur, center. J. J. Deaner, Tyler, M. T. Cole, 120, 1, T. Johnson sur, 330 ft from s and w lines. Navarro Oil Co., Houston, E. G. Greene, 23, 2, M. Van Winkle sur, 250 ft from w and 200 ft from s line. Louis Sikes, Tyler, Rodden, 10, 2, J. R. Crosby sur, 260 ft from n and 248 ft from e line. H. H. Holden, Tyler, E. Register, 13, 2, I. Baity sur, 398 ft from w and 183 ft from n line. Meridian Pet. Corp., Tulsa, T. W. Lee, 53, 6, Crosby sur, 260 ft from s and 249 ft from e line. National Oil Co. of Texas, San Antonio, L. Martin, 20, 2, W. M. Chisum sur, 330 ft from s & 279 ft from e line. B. Kouns, Shreveport, La., Hughey-Ross, 10, 1, J. Moffitt sur, 330 ft from n and 215 ft from e and w lines. R. E. Wyche, Jr., Shreveport, La., Allen-Arnold, 17, 1, P. Helmes sur. Midas Oil Co., Dallas, Bacle, 7, 3, Hooper sur, 288 ft from e and 217 ft from n and s lines. B. F. Phillips, Gladewater, Fee, 1, M. Dillard sur, 100 ft from w and 114 ft from s line, Blk 56. Alco Royalty Co., Tulsa, Okla., R. K. Johnson, 20, 3, D. Sanchez sur, 330 ft from n and 221 ft from e line. Lester & Duffield, Fort Worth, J. C. McKinley, 10, 2, G. W. Hooper sur, 900 ft from n and 143 ft from e and w lines. Lion Oil & Refg. Co., El Dorado, Ark., A. A. King, 20, 4, M. Van Winkle sur, 275 ft from e and 180 ft from n line. Sinclair-Prairie Oil Co., Forth Worth, A. King A, 367, 21A, P. Warraner sur, 330 ft from n and e lines; A. A. King, A, 367, 22A, 330 ft from n and 763 ft w of No. 21; 23A, 330 ft from n line and 763 ft w of No. 22; 24A, 330 ft from n line and 763 ft w of No. 23; 25A, 330 ft from n line and 1333 ft from w line; 26A, 330 ft from n & w lines; M. T. Cole, 666, 25, S. Brooks sur, 3979 ft from n and 770 ft from e line; S. G. Andrews, 200, 8, J. G. Walker sur, 990 ft from n and 1450 ft from w line; A. A. Lockhart, 128, 7, A. Norris sur, 330 ft from w and 990 ft from s line; M. T. Cole, 666, 27, S. Brooks sur, 2750 ft from w and 3330 ft from n line; A. A. King, B, 147, 5, Jno. Keiser sur, 1825 ft from s and 685 ft from w line; M. Lawson, 87, 7, C. H. Alexander sur, 1291 ft from w and 153 ft from s line. Humble Oil & Refg. Co., Houston, J. F. Bowles, 100, 5, D. Ferguson sur, 330 ft from n and e lines; D. Thomas, 59, 9, M. Van Winkle sur, 200 ft from n and 218 ft from sw line. Magnolia Pet. Co., Dallas, H. S. Foster, 100, 6, W. C. Wakeland sur, 330 ft from n and 200 ft from w line; R. H. Rowland, 12, 1, M. Van Winkle sur, 150 ft from nw and sw lines; G. W. Richey, 45, 3, H. H. Edwards sur, 339 ft from sw and 276 ft from e line. Cox & Hamon, Ardmore, Okla., L. A. Rodden, 110, 12, Crosby sur, 190 ft from n and 248 ft from w line. Sun Oil Co., Dallas, M. C. Satterwhite, 83, 2, Wm. Castleberry sur, 330 ft from s and e lines; M. T. Cole, 264, 9, A. Park sur, 330 ft from w and 1650 ft from s line; J. C. Campbell, 107, 2, G. R. Rains sur, 370 ft from e and 990 ft from s line; C. Brown, 100, 4, McCurry sur, 330 ft from n and e lines; A. Tooke, B, 8, 5, W. C. Wakeland sur, 330 ft from n and 200 ft from e line. Gulf Prod. Co., Houston, M. O. Shepperd, 335, 10, G. R. Rains sur, 1030 ft from n and 922 ft from e line; W. Holt, 201, 11, Jno. Blair sur, 896 ft from w and 689 ft nw of No. 5; J. C. Clayborn, 20, 1, I. Baity sur, 508 ft from e and 429 ft from s line; T. C. Reeves, 80, 4, G. F. Penn sur, 330 ft from s and e lines; M. F. Barker, 74, 4, M. Dillard sur, 1692 ft from e and 330 ft from s line. *Sun Oil Co., Dallas, J. Rollins, 87, 3, M. Scott sur, 330 ft from s and e lines. Shell Pet. Corp., Dallas, W. D. Lacy, 119, 4, E. H. Grisham sur, 330 ft from n and e lines; J. B. Watson, 385, 16, J. S. Caruthers sur, 570 ft from w and 630 ft from n line; 17, 1774 ft from w and 580 ft from s line; H. T. Elder, 36, 2, M. Van Winkle sur, 330 ft from e and 357 ft from n line. Texas Co., Shreveport, La., W. A. Baxter, 96, 5, M. Scott sur, 330 ft from n and e lines. Stanolind Oil & Gas Co., Fort Worth, H. Key, 91, 6, Wm. Castleberry sur, 990 ft from s and 330 ft from e line. Arkansas Fuel Oil Co., Shreveport, La., G. A. Castleberry, 52, 3, D. Sanchez sur, 190 ft from s and 200 ft from e line. Selby Oil & Gas Co., Tulsa, Okla., Snavely Hrs., B, 361, 7, F. W. Johnson sur, 330 ft from e and 4193 ft from s line. Atlantic Oil Prod. Co., Dallas, R. C. Barnwell, B, 49, 3, McAnelly sur, 330 ft from e and 990 fe from n line; S. C. Fishburn, 80, 3, Johnson sur, 990 ft from n and 330 ft from w line; 4, 330 ft from w and 1650 ft from n line. Empire Gas & Fuel Co., Gladewater, E. L. Walker, 160, 4, Jno. Tate sur, 880 ft from e and 330 ft from s line; 6, 1540 ft from e and 990 ft from s line; 3, 880 ft from e and 990 ft from s line. Deep Rock Oil Co., Tulsa, Okla., H. Pritchard, 40, 2, F. W. Johnson sur, 330 ft from s and e lines; H. Pritchard, 110, 6, F. W. Johnson sur, 330 ft from w and 990 ft from s line. Amerada Pet. Corp., Fort Worth, S. G. Smith, 40, 1, Wm. Robinson sur, 330 ft from n and w lines; E. Burnsides, 100, 6, F. W. Johnson sur, 330 ft from w line and 775 ft s of No. 5. Tidal Oil Co., Kilgore, M. B. Hughey, 200, 12, J. Hilliard sur, 415 ft from s and 2970 ft from w line; B. Moore, 90, 6, J. Moseley sur, 330 ft from w line and 250 ft from n corner.

GRAY COUNTY—Texas Co., Wichita Falls, S. Faulkner, 200, 6, S 29, B, B2, H&GN sur, 1148 ft from s and 310 ft from w line of sec.

GOLIAD COUNTY—Camp & Stanolind Oil & Gas Co., San Antonio, J. E. Pettus, 1960, 4, Lot 11, S. Vela sur, 3345 ft from s and 3525 ft from e line.

GLASSCOCK COUNTY—California Oil Co., Midland, M. E. O'Byrne, 40, 1, S 23, B 33, T&P sur, 990 ft from w and 330 ft from n line.

HARRIS COUNTY—Wilson Oil Co., Houston, Wheeler-Pickens, 2½, 9, J. B. Stevenson sur, 40 ft from n and w lines. Sun Oil Co., Beaumont, R. L. Blaffer, 292, 5, 5, R. Dunman sur, 50 ft from e line and 180 ft n of No. 50. Texas Co., Houston, House, 985, 26, M. Owens sur, 220 ft e of No. 17; Wheeler-Pickens, 100, 25, J. B. Stevenson, 50 ft, w and 200 ft from s line, Blk 24.

HARDIN COUNTY—J. E. Proctor & Co., Houston, Russel, 40, 1, Blk 20, E. Turnbow sur, 200 ft w of center of e line.

HOWARD COUNTY—Merrick & Lamb, Ardmore, Okla., O. Chalk, 20, 4, S 125, B 29, W&NW sur, center.

JACK COUNTY—R. J. Brown, Henrietta, M. M. Plemmons, 40, 1, E. Smith sur, 150 ft from w and 200 ft from s line.

JONES COUNTY—Robert Oil Corp., Breckenridge, J. S. Swann, 80, 1, No. 281, I. Miley sur, 1580 ft from e and 450 ft from n line.

LIBERTY COUNTY—S. P. Bristley, Liberty, J. M. Neal, 300, 1, E. Tanner sur, 1390 ft from e and 300 ft from s line. R. C. Healy, Houston, J. S. Finley, 4, 1, J. Devore sur, 100 ft from n and 50 ft from e line.

McLENNAN COUNTY—Steiner Oil Co., Waco, Steiner, 460, 1, I. Galinda sur, 775 ft from e and 1407 ft from s line.

MORRIS COUNTY—W. L. Murrell, Dallas, Walcott-Lott, 577, 1, D. A. Russell sur, 330 ft from n and e lines.

NEWTON COUNTY—L. A. James, Port Arthur, Bevil-Price, 325, 1, S 13, B 6, T&NO sur, 1000 ft from w and 500 ft from n line.

NUECES COUNTY—Gulf Coast Oil Co., Houston, B. Elder, 122, 2, H. P. Shepperd

sur, 171 ft from e and 278 ft from s line, Blk. 29.

PECOS COUNTY—Cardinal Oil Co., San Angelo, J. H. Tippett, E, 160, 11, S 40, B 194, GC&SF sur, 530 ft from w and 425 ft from s line.

RUSK COUNTY—Solar Exploration Co., Ardmore, Okla., R. M. Leath, 160, 1, D. Clark sur, 330 ft from n and w lines. Luling Oil & Gas Co., San Antonio, W. P. Brightwell, B, 22, 3, R. E. Winn sur, 200 ft from s and w lines. Conservative Oil Co., Dallas, Harmon, 33, 3, F. Cordova sur, 150 ft from n and 90 ft from e line. J. P. Wolverton, Tyler, N. Cooper, 20, 1, T. J. Moore sur, 150 ft from n and w lines. Ward Oil Corp., Ardmore, Okla., E. S. Thrash, 200, 12, F. Cordova sur, 286 ft from w line and 691 ft n of No. 8. J. E. Crosbie Inc., Tulsa, Okla., E. Camp, 51, 1, J. C. Barnett sur, 330 ft from sw and 260 ft from n line. Beard & Hammond Oil Co., Fort Worth, H. Alexander, 25, 2 Thos. Grace sur, 241 ft from s and 990 ft from w line. J. L. Collins & Co., Corsicana, L. J. Pinkston, 53, 3, M. J. Pru sur, 330 ft from w and 176 ft from s line. Adams & Lyles, Lockhart, A. Kersh, 56, 1, E. B. Foulks sur, 330 ft from n and 178 ft from e and w lines. Standard Oil Co. of Kansas, Wichita, Kans., M. L. Thompson, 59, 4, I. Moore sur, 330 ft from s and w lines. Butler & Calhoun, Tyler, Bohanan, 8, 1, W. G. Tutt sur, 150 ft from n and e lines. Falcon Co., Fort Worth, A. K. Perkins, 77, 4, J. B. Cadena sur, 330 ft from s and 2012 ft from e line. G. & A. Oil Co., Longview, W. Roberson, 112, 1, T. J. Martin sur, 330 ft from s and w lines. H. L. Hunt, Tyler, Bradford, B, 100, 5, J. Ximinez sur, 330 ft from e and 990 ft from n line. Lion Oil & Refg. Co., El Dorado, Ark., H. Brooks, B, 87, 8, M. J. Pru sur, 150 ft from n and 320 ft from e line; 9, 540 ft from s and 230 ft from e line. J. E. Mabee Co., Arp, F. B. Wilson, 31, 3, M. J. Pru sur, 333 ft from n and 150 ft from e line. J. E. O'Donnell, Fort Worth, London Sch., 3, 2, 25 ft from n and 60 ft from e line. Sinclair Prairie Oil Co., Fort Worth, D. Ledbetter, 191, 9, W. D. Porter sur, 1128 ft from w and 330 ft from s line. W. H. McCord, 50, 2A, Cadena sur, 330 ft from s and 370 ft from w line; A. Kersh, 155, 5, E. B. Foulks sur, 330 ft from n and 179 ft from e line. Humble Oil & Refg. Co., Houston, amended location; C. J. Thompson, 116, 8, M. J. Pru sur, 210 ft from w and 724 ft from n line; B. Peterson, 50, 2, J. Lewis sur, 1250 ft from w and 454 ft from n line; W. L. Price, 447, 18, A. Melton sur, 1980 ft from n and 1162 ft from e line; H. A. Piercy, A, 116, 4, T. J. Martin sur, 1144 ft from n and 330 ft from e line. Deep Rock Oil Co., Tulsa, Okla., J. T. Stovall, 194, 11, J. B. Cadena sur, 330 ft from w and 1383 ft from n line. Stanolind Oil & Gas Co., Fort Worth, W. Wooley, 66, 1, T. J. Martin sur, 330 ft from n and w lines R. J. Burton, 154, 8, T. M. White sur, 2630 ft from w and 330 ft from n line. Magnolia Pet. Co., Dallas, W. W. Jernigan, 80, 4, J. C. Snow sur, 330 ft from n and ne lines; G. W. Eaton, 40, 6, E. Cordova sur, 330 ft from n and 195 ft from e line. Tidal Oil Co., Kilgore, J. Shaw, 85, 5, E. Collard sur, 1049 ft from n and 330 fe from w line. Gulf Prod. Co., Houston, A. H. Rayford, 60, 2, Cordova sur, 272 ft from s line and 660 ft w of No. 1; C. E. Christian, C, 277, 14, W. W. Simms sur, 1022 ft from w and 2811 ft from s line. Mid-Kansas Oil & Gas Co., Shreveport, La., W. T. Grissom, 842, 8, W. J. Roan sur, 330 ft from e and 520 ft from s line. Clay Hrs. 130, 3, M. V. Pena sur, 343 ft from s and 1541 ft from w line; 2, 582 ft from s and 928 ft from w line; W. T. Grissom, 842, 9, P. Gorman sur, 990 ft from e and 330 ft from s line; M. M. Cross, 815, 27n, Cadena sur, 330 ft from s and 518 ft from e line; M. Kangera, 66, 4, Cadena sur, 330 ft from n and 583 ft from e line.

SMITH COUNTY—W. B. Hinton, Lockhart, H. Mayfield, 94, 4, Jas. Jordan sur, 330 ft from n and e lines. Arcadia Refg. Co., Tyler, J. R. Green, 56, 44, Jas. Jordan sur, 150 ft from n and 592 ft e line. R. J. McMurry, Henderson, Cole, 56, 1, E. B. Foulks sur, 330 ft from e and 203 ft from n and s lines. L. G. Rabe, Tyler, J. C. Bateman, 15, 1, Jas. Jordan sur, 330 ft from s and 252 ft from e and w lines. Stewarts Holdings, Inc., Tyler, R. McDavid, 38, 2, Jas. Jordan sur, 330 ft from s and 980 ft from e line. Mid-Kansas Oil & Gas Co., Shreveport, La., M. M. Cross, 815, 22, I. Proctor sur, 330 ft from w and 1037 ft from s line; 23, 330 ft from w and 1744 ft from s line; J. H. Sharp, 483, 6, M. S. Coy sur, 330 ft from e and 1038 ft from s line; 5, 330 ft from e and 1744 ft from s line. Sun Oil Co., Dallas, A. V. Ritch, A, 99, 5, S. Dexter sur, 290 ft from e and 655 ft from n line; J. D. Henson, 217, 10, J. Vargas sur, 330 ft from e and 1030 ft from s line. Sinclair-Prairie Oil Co., Fort Worth, A. S. Jarvis, C, 256, 11, J. Vargas sur, 2230 ft from n and 330 ft from w line; A. S. Jarvis, A, 266, 16, J. Vargas sur, 330 ft from w line and 724 ft s of No. 13.

STARR COUNTY—H. C. Tarter, Edinburg, H. Gonzales, 100, 1, Sh 62, B 1, Por. 71-72, 988 ft from n and 1142 ft from e line. S. W. Traylor et al, Refugio, Wood, 20, 1, B 7, Tr 5, Por. 81, 150 ft from n and w lines. Heard & Heard, Refugio, Block, 10, 1, Sh. 28A, Por. 80, 150 ft from s and e lines of Blk 4. Stryals Oil Corp., Refugio, Caffarelli, 45, 1, Sh. 19d, Por. 80, 150 ft from n and e lines; Gonzales, 26, 1, Sh. 27, Por. 80, 150 ft from n and e lines. Gulf Coast Oil Co., Houston, F. Dono, 1, Sh. 27A, Por. 81, 868 ft from e and 150 ft from s line, lot 4. R. H. Pursley, Rio Grande City, Hinojosa, 1, B 98, Por. 80, n of center of s line. Los Olmos Oil & Gas Co., Harlingen, Kelsey-Bass, 2590, 14, Por. 75-76-77, Sec. 7, 400 ft from w and 150 ft from s line; 15, sec 6, 500 ft from w and 450 ft from n line. H. D. Carpenter, Woodsboro, Doyno-Chatfield, 34, 1, Por. 80, Sh. 21, 175 ft from s and e lines.

SHACKLEFORD COUNTY—Union Oil & Mining Co., Tulsa, Okla., L. C. Huskey, 320, 54, 548, TE&L sur, 1720 ft from n and 1120 ft from e line. W. K. Wood, Albany, W. H. Green, 40, 1, 541, TE&L sur, 780 ft from se and 28 ft from ne line. H. B. Mays et al, Eastland, A. J. Swenson, 120, 1, S 206, E. T. Ry. sur, 1400 ft from e and 150 ft from s line.

SCURRY COUNTY—W. S. Guthrie, Rockdale, Snyder Natl. Bk., 80, 1, S 115, B 87, H&TC sur, 330 ft from n and w lines.

THROCKMORTON COUNTY—Toucan Oil Co., Woodson, E. Horton, 40, 1, 935, TE&L sur, 150 ft from s and e lines.

TRAVIS COUNTY—Marts & Beavans, 1705 Elm St., Dallas, J. A. Kennedy, 169, 1, Wm. Hines sur, 150 ft from n and e lines.

UPSHUR COUNTY—Galvez Oil Corp., Tulsa, Okla., G. Moore, 51, 2, D. Ferguson Salouge-Cooper Drilling Co., Longview, E. O'Byrne, 301, 3, J. M. Pineda sur, 330 ft from s and e lines. Hawkeye Pet. Corp., Longview, L. L. Mackey, 50, 1, T. Hopkins sur, 330 ft from n and e lines. Cranfill & Reynolds, Houston, Jno. Williams, 101, 4, McKinney & Williams, B. Manziel, Gladewater, J. O'Byrne, 3, 1, J. M. Pineda, center. Magnolia Pet. Co., Dallas, H. Fenton, 50, 3, Wm. King sur, 230 ft from n and 300 ft from e line; J. W. Free, 169, 8, G. W. Hooper sur, 330 ft from n and w lines. J. C. Robbins, Longview, Texas, Baptist Ch., 1, 1, Wm. King sur, 60 ft from e and 150 ft from s line. Humble Oil & Refg. Co., Houston, J. T. Miller, 99, 5, D. Ferguson sur, 330 ft from s and e lines. Stanolind Oil & Gas Co., Fort Worth, J. J. Flewellen, C, 200, 5, M. Mann sur, 7050 ft from e and 425 ft from s line.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, V. T. Davis, 139, 2, J. Goodman sur, 200 ft from e and 613 ft from s line; E. York, 188, 8, J. Walling sur, 200 ft from n and w lines; B. W. Camper, 55, 2, J. Walling sur, 200 ft from w and 250 ft from s line; M. P. Neill, 100, 6, J. Rose sur, 225 ft w of center of e line; W. F. Swain, 60 6, J. Walling sur, 552 ft from w and 250 ft from s line.

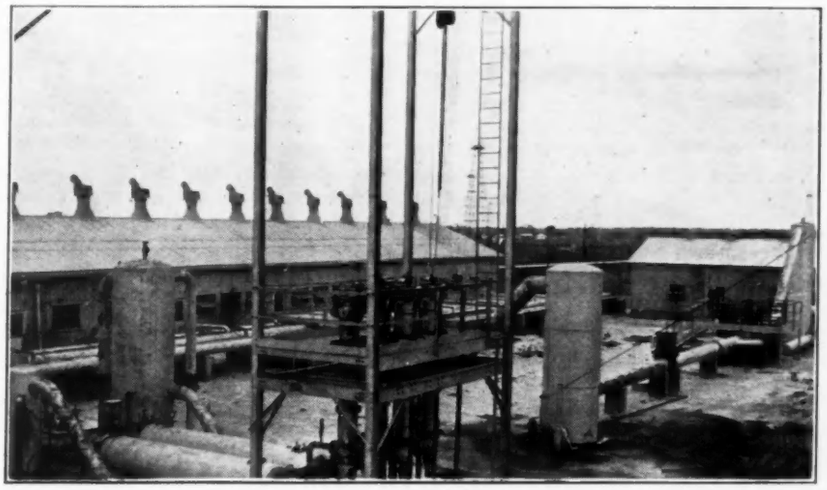
VICTORIA COUNTY—Union Oil Co., Abilene, C. N. Keeran, 5000, 1, M. DeLeon sur, nw corner.

WILSON COUNTY—Sun Oil Co., Dallas, I. Tudyk, 157, 1, Jno. Turner sur, 650 ft from w and 500 ft from s line.

WICHITA COUNTY—R. R. Clark et al, Wichita Falls, J. F. Bickley, 400, 22, S 2, C&M sur, 850 ft from n and 1162 ft from e line.

WOOD COUNTY—F. H. Zeigen, Winnsboro, M. L. McClain, 66, 1, Brooks sur, 350 ft from n and 542 ft from e line

YOUNG COUNTY—Kleiner & H-Y Oil Co. & West, Cisco, J. P. McKinley, 252, 30, 1489, TE&L sur, 1425 ft from e and 750 ft from s line; 31, 1425 ft from e and 1050 ft from s line. L. P. Gafferey, Wichita Falls, J. D. Lowe, 1, 2249, TE&L sur, 200 ft from w and 150 ft from n line. C. H. Fisher, Dallas, J. W. Cox, 40, 1, B 13, YCSL sur, 150 ft from s and w lines. B. C. Gilman, Markley, J. W. Collier, 4, 5, B 21, YCSL sur, 150 ft from n and 450 ft from e line. Texas Co., Wichita Falls, A. M. Kunkel, 80, 1, 2447, TE&L sur, 2622 ft from e and 150 ft from s line. N. D. Goldsmith et al, Olney, J. P. Dunagan, 32, 2, 163, TE&L sur, 450 ft from e and 150 ft from s line. Kleiner & Riggs, Graham, J. F. Larimore, 80, A12, 2246, TE&L sur, 150 ft from s line and 300 ft w of No. 11. L. F. Kubecka, Wichita Falls, F. M. Cullers, 50, 2, B 25, YCSL sur, 150 ft from n and 700 ft from w line. J. W. Osteen, Cisco, B. B. Teague, 50, 1, Masonic Lands sur, 150 ft from s and e lines. Jacob Oil & Gas Co., Graham, Thedford, 40, 1, J. T. Lamar sur, 422 ft from n and 216 ft from e line. C. A. Daubert, Wichita Falls, J. M. Boswell, 105, 1, 1909, TE&L sur, 150 ft from s and w lines. E. F. Stroube, Fort Worth, W. T. Finsh, 40, 1, 38, TE&L sur, 150 ft from s and 275 ft from e line. D. Z. Wolf, Olney, J. A. Cole, 100, 1, 3403, TE&L sur, 450 ft from w and 150 ft from n line. C. W. Sneddy, Wichita Falls, E. Baldwin, 40, 1, 294, TE&L sur, 150 ft from n and e lines. United Prod. Co., Wichita Falls, J. P. Dunagan, 48, 2, 183, TE&L sur, 450 ft from w and 150 ft from n line.



Showing a part of Humble Oil & Refining Company's repressuring plant at Raccoon Bend, Austin County, Texas.

SOUTH TEXAS

Guadalupe County Seems Assured of a New Field. Deep Tests in Bee County Showing Promise.

EARL POST, *Staff Representative, San Antonio*

Bee County Deep Tests Report Favorable Showings

San Antonio, Texas.—Deep showings were encountered in two Bee County wildcats late last week.

Texas Gulf Producing Company's Webb Hearn 1, located 1500 feet north and 43 degrees east of Humble & Hulburt's J. C. Wood 1, PT Irrigation Company survey, topped a sand at 4993 feet and drilled to 5037 feet where it showed 34 fourbles of mud and considerable gas on drill stem test. The test was not satisfactory and another was being attempted. The sand was logged from 4993 to 5008 feet.

The Wood well, drilled the latter part of 1930, set 6 5/8-inch casing at 4949 feet, after drill stem tests failed. A sand was encountered at 5020-55 feet, and the total depth was 5077 feet. Early this year, the well was cleaned out and made heads of oil, which prompted further development.

The other showing was in the United Production Company's J. Scott 4, being drilled by The Texas Company, one mile south of Normanna in the J. Uranga survey. This well showed a sand at 4405-24 feet, which showed mud, oil and gas on a drill stem test. About one-half joint of drill stem and the tools were lost in the hole, and were being fished out. C. F. Nichols, drilling J. P. Harris 1, one and one-half miles east of Tuleta, is shut down temporarily after reaching 2700 feet. It is in the west one-half of the southwest one-fourth of Section 2, Durango Survey.

Slick-Seligson Corporation has drilled the plugs in Ray 6, Kerr Survey, southwest Pettus, which had the sand at 3876-89 feet. A west offset to the well, The Texas Company's Gremmel 5, is down 2755 feet.

Five Failures Fail to Deter Starr County Drilling

San Antonio, Texas.—Five failures within a few miles of Sioux Oil Company's Goodrich 1 wildcat producer in Starr County, has not slowed drilling activity there. Several more tests were started during the past few days.

Heard and Heard's Block 1, southeast corner of lot 4, Tract 28-A, Porcion 80, is drilling at 1080 feet. This well is about one-half mile southwest of the discovery and is at the foot of a ridge separating the small valleys in which they were drilled. Heard and Heard drilled the discovery.

Traylor-Munday-Flowers' Goodrich 1, 2100 feet southeast of the discovery, is said to be headed for the deeper sands should it fail to pick up the 1300-foot pay. It is 150 feet from the north and west lines of block 7, tract 5, porcion 80. It was drilling at 735 feet about the middle of the week.

A 300-foot north offset to the above well has been located by P. A. Hoffman. Goodrich 1, 150 feet from the south and west lines of block 6, tract 5, porcion 80. It is rigged up, but will wait the result of the other test before spudding.

Gulf Coast Oil Company's Frank Doyno 1, 900 feet north of the discovery well, has been spudded. It is 150 feet from the south line and in the center of block 4, share 77, porcion 81.

Sioux Oil Company's Goodrich 1, the discovery well, is making 65 barrels daily on pump. The well will flow by heads if shut in long enough to allow the gas pressure to build up. The sand is unusually tight. Log on the sand is given at 1375 feet top and 1387 feet total depth. This well is 960 feet from the north and 1275 feet from the west lines of block 1, tract 5, porcion 80.

A short distance northwest of Rio Grande City and on another strike, Tarver and Nance are attempting to open a field. After making a failure of V. C. de Guerra 1 at 2591 feet, they are moving 1500 feet northeast. The new well is Seabury et al 1, 400 feet from the west line and 150 feet from the north line of tract 21, porcion 79.

Second Sarnosa Well Is Good Producer

San Antonio, Texas.—The Sun Company made a good producer in Cano 1, second oil producer in the newly discovered Sarnosa field, two miles southwest of Government Wells, Duval County. The well was flowing 940 barrels through half-inch choke June 9. It is in section 576, 950 feet southeast of the Capps and Smith discovery test.

The well got a sand from 2365 to 2373 feet, shale break from 2373 to 86

New Balcones Fault Field in Guadalupe Seems Assured

San Antonio, Texas.—A new Balcones fault field in Guadalupe County, five miles east of Seguin and midway between that town and the Darst Creek field, seemed possible late in the week. Sal-Mar Oil Corporation's A. H. Zunker 1, L. Ballinger survey, was being drilled in June 10, preparatory to completion.

The well earlier in the week encountered top of Austin Chalk at 1996 feet and drilled to 2010 feet where it developed sufficient gas pressure to blow mud from the hole. There was a heavy showing of oil at the same time.

During the 48 hours from striking of the showing until the casing was cemented, the tests made numerous attempts to blow out, heavy mud being pumped in to prevent this.

The exact location is 450 feet from the west line and 170 feet from the south line of the 101.5-acre tract, 3000 feet east of the same company's A. F. Pfullman 1, which recently topped the Edwards lime at 2422 feet, drilled to 2430 feet and showed eight feet of sulphur water. It was abandoned.

The Zunker well is the second of a project of three tests for this 3400-acre block held by Sal-Mar Oil Corporation. This area is generally referred to as the T. H. Poole block, and includes the Hoffman well of Barnhill et al, which was drilled to a shallow depth last year and shut down. When taken over by the Sal-Mar organization, the rig was moved from the Barnhill well for the drilling operations.

L. K. Salsbury, Memphis, Tenn., is president of the organization, which has maintained offices in Tyler, being rather active there. Early in March, the company opened offices in Seguin. It now is preparing to move into San Antonio.

This district has had considerable play since the discovery of the Darst Creek field. Much wildcat drilling has uncovered a number of interesting structures, but no actual pools have been opened in Guadalupe County since Darst Creek's discovery, except for its south extension by Camp.

feet and sand to 2392 feet. This is similar to the other producing areas of the Government Wells district.

Magnolia Petroleum Company's M. Ruiz 1, Survey 574, offset to the Sun well, topped the sand at 2373 feet and set casing. It is preparing to drill in.

Magnolia Pipe Line Company is to make connections to Suttle et al's Bennett 1, discovery test at Rosita, two miles north of Government Wells. The company has agreed to take a minimum of 100 barrels daily from this well. Magnolia Petroleum Company is ready to drill a north and east offset to this producer.

Of interest is Seacord and Putnam's Johnson 1, one-half mile east of the Bennett well, Survey 44, which is turning to an oil producer. It was completed two months ago for 10,000,000 cubic feet of gas from the cole sand at total depth of 1574 feet. Gas from this well was used in drilling operations on the Suttle test, but it has increased its oil flow so greatly that it could not be used for fuel. The Suttle well is producing from the Government Wells horizon, 800 feet deeper.

Well in New Luling Area Drills Into Crevice

San Antonio, Texas.—Empire Gas & Fuel Company's southeast offset to Bob Rose's crevice well, 2½ miles northeast of Luling, Caldwell County, seems to have encountered the crevice. It has a total depth of 2393 feet, but is said to have lost the returns around 2100 feet. Casing has been set at 1861 feet and preparations are being made to drill in. It is 150 feet from the north and west lines of the 47-acre W. P. Walker tract in the S. Seal Survey.

The Rose well has put more than 80,000 barrels of oil into the tanks in less than two months. It has shown no water.

Deep Development Holds Victoria County Interest

San Antonio, Texas.—Victoria County continues to hold the spotlight in deep developments. Victoria Oil Company is preparing to drill the plugs in G. Keeran 2, 1500 feet east of the Keeran 1, in an attempt to prove up a sand encountered from 5334 to 5340 feet. Keeran 1 made a wet gasser from 5183-91 feet. The second well cored this sand, but showed very little. It got a sand at 5285-5301 feet, which showed for a large gasser and then encountered the third sand, which is being tested.

Union Oil Company of Nevada is spudding Keeran 1, a projected deep test.

South Texas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BEE COUNTY—		
United Prod. Co., Ray 42, Kerr sur, Pettus, top sand 3921 ft, pressure 90 lbs.	128	3939
Ray 43, Hanson sur, Pettus, top sand 3922 ft, pressure 260 lbs.	125	3942
BEXAR COUNTY—		
Chiquita Oil Co., R. Pollock 4, Rialls sur, Cooksey, top sand 1463 ft, pumping	15	1480
DUVAL COUNTY—		
Duval Oil Corp., Bishop 10, Sec. 135, Gov't Wells, top sand 2365 ft	300	2372
Sun Oil Co., Cano 1, Sec. 576, Sarnosa, sand 2365-73 ft, shale 2373-86 ft, sand 2386-92 ft, on ½ choke	940	2392
The Texas Co., Ruiz 1, sur 127, 1 mi e Sarnosa field	•	2700
WEBB COUNTY—		
French Oil Corp., Benavides 4-A, sur 659, West Cole	75	2334
ZAPATA COUNTY—		
Allied O&G Co., Gutierrez 26, Share 4, Fansler sub, Escobas	1920	1476
SR&C Oil Corp., G. T. Montemayor 11-D, blk 9, sur 64, Escobas, top sand 1474 ft	50	1477

Wildcat Drilling Report

(Wells shut down not included)

ATASCOSA COUNTY—Atascosa Oil Corp., Martin 2, Diego Perez sur, (formerly Glenn Mathis—taken over to deepen) 2050 ft.

BASTROP COUNTY—Campbell & Tong, Yoast 8, Garcia survey, Yoast field, to spud.

BEE COUNTY—Humble O&R Co., Laura Thompson 1, Garrett Roche sur, dr 5635 ft. C. F. Nichols, J. P. Harris 1, sec 2, Durango Grant, dr 2275 ft. T. B. Slick Estate, Inc., Ray 6, Geo. Kerr sur, 400 ft n No. 3, sw Pettus, top sand 3876 ft, show prod on dst, set csg, woc. Texas Gulf Prod. Co., Webb Hearn 1, 1500 ft no Wood 1, P. & T. Irrigation Co. sur, top sand 4980 ft, prep dst. The Texas Co., L. Gremmel 5, Jno. Pace sur, sw Pettus, 400 ft n No. 1, set surface cas, re-dr. United Prod. Co., J. Scott 1, (dr by Texas Co.), J. Uranga sur, 1 mi s Normanna, dr 4025 ft.

BEXAR COUNTY — American Gas Co., Kennon 5, M. F. Rodriguez sur No. 4, Gas Ridge, dr 2225 ft. Alamo Nat'l Gas Co., Coreth 1, Menchaca sur, Eckert pool, spud in. S. W. Blount, Jr., et al, 1-A, Perez sur, dr 750 ft. Davis, Noble & Bender, S. A. Farms 1, blk 81, top chalk 1385 ft, dr 1655 ft, Del Rio. Moore & Jauer, Holly Ellison 1, 14 mi w S. A., wash down.

BROOKS COUNTY—Allen & Morris, Holbein-Wormser 1-A, Palo Blanco de Maguellos Grant, Alta Mesa, dr 600 ft. M. P. Evans, J. M. Martinez 1, La Escantada sur, blk 11, dk. Ed East et al, Rudolpho Garza 1, Alta Mesa, set 900 ft. E. G. Stearns, B. Myrick 1, blk 3, lot 2, Falfurrias, sd 1174 ft. Otto Woods et al, Matilda Martinez 1, Longoria league, 25 mi sw Falfurrias, ru.

CALDWELL COUNTY—Bobrose Oil Refineries, Inc., Walker 2, S. Seal sur, ¼ mi s Walker well, ru. Cole et al, Pierce 1, Seal sur, ¼ mi ne Rose well, dk. Empire Gas & Fuel Co., W. P. Walker 1, Seal sur, se offset Rose well, td 2393 ft, set cas 1861 ft, testing. George C. Sullivan (Shell) Plimsoll 1, M. W. Dennis sur, dr 1040 ft. C. J. Webster O&G Co., W. W. McCrory 1, McNeil sur, (discovery) working over, td 2279 ft; C. T. Robertson 1, ½ mi sw McCrory well, John Neill sur, dk up, to ru.

COLORADO COUNTY—Coyle-Concord Oil Co., Stewart Nelson 1, I&GN sur No. 43, coring 1943 ft. V. F. (Doc) Neuhaus Drlg. Co., M. C. Barnett 1, sur 25, Obid K. Winn sur, 5 mi s Sheridan, lcn.

De WITT COUNTY—Pat Armstrong, E. T. Clark 1, Jose Santos sur, dk. J. F. Richardson 1, Taylor 1, D. Albrete sur, spud in. Texas Co., McCrabb 1, at Thomaston, James Quinn, dr 3250 ft.

DUVAL COUNTY — Aztec O. & Royalty Co., Duval Co. Ranch Lands 1, sec 322, temp sd 965 ft. John F. Camp, Weil 2, sw No. 1, sur 57, to sp in. Coffield et al, Wendt 1, sur 43, ½ mi w Suttle well, sp in. Cole Pet. Co., Benevides 75, blk 8, sur 9, Mariano Arispe Grant, Cole Bruni, coring 5986 ft. Co-operative Drlg. Co., Dinn 5, blk 5, sur 545, set cas 1645 ft. Mag. Pet. Co., M. Ruiz 1, sec 574, BS&F top sand 2373 ft, set cas; Gilbert Wendt 1, sur 44, n offset Suttle well, Rosita, lcn; J. T. Johnson 1, sur 44, ne Suttle well, Rosita, lcn. Harry E. Oliver, Wood-Welder 1, sur 213, lcn. Plymouth Oil Co., A. Pharr 1, blk 48, San Andres Grant, to spud. Southwest Drlg. Co., R. Wendt 1, sur 43, Rosita, dk. Sun Oil Co., Cano 1, sec 576, top sand 2365 ft, td 2373 ft, set cas, dr in. The Texas Co., Peters 1, sur 162, Kohler pool, ru. E. R. Thomas, Wood Welder 1, sur 383, 5 mi ne Rosita, lcn. Thomas & Tarver, Duval County Ranch Co., sur 576, Sarnosa, lcn.

GOLIAD COUNTY—Gulf Prod. Co., O'Conner 1, Morris sur, dr 2250 ft. Humble O&R Co., M. Fromme 1, G. W. Kersey sur, 3 mi n Goliad, dr 3406 ft. Slick-Seeligson, Allen 2, Obid Marshall sur, Slick pool, deepen from 4213 ft. Stanolind O&G Co. & John F. Camp, Pettus 4, Cabeza Creek, dr 2100 ft.

GONZALES COUNTY — Johnson-Mattocks O&G Co., J. James 1, M. A. Williams sur, dr 2200 ft.

GUADALUPE COUNTY — Humble O&R Co. Sue E. Denman 5-C, Wm. Arrington sur, Darst Creek, attempt dst 2328 ft, Eagle Ford. Sal Mar Oil Corp., A. H. Zunker 1, L. Ballinger sur, between Seguin and Darst Creek, top chalk 1906 ft, td 2010 ft, show oil, set cas. Sun Oil Co., Dowdy 2, Darst Creek, Jacob Darst sur, dr 1230 ft.

HIDALGO COUNTY—B. H. Adams, J. D. Brock 1, Por. 79, blk 15, sd 4590 ft.

JIM HOGG COUNTY—Clark and Cowden Oil Corp., E. Vela 1, sec 573, El Peyote Grant, spud in. D. C. DeWitt, T. Gomez 1, Sec. 12, sd 1450 ft. E. D. Hough, N. Hinnant 1, sec 20, Fensler sur, blk 8, to spud in. R. L. Huckett et al, F. C. Guerra 1, sec 86, blk 6, dr 1825 ft. Randado Syndicate, Fee 1, sur 148, Randado Townsite, dk.

JIM WELLS COUNTY—Carroll Brown et al, Doering 1, tract 4-A, Chas. Selfeld Farm lots, 5 mi s Alice, dk. F. A. Lain, V. Porter 1, tract 25, near Sandria, rebuild dk, td 500 ft. S. J. Sloane, G. W. Wade 1, C. Blanca sur, blk 6, dr 2350 ft.

KARNES COUNTY—Pickett et al, Myers 1, 2 mi sw Runge, dr 2100 ft.

KERR COUNTY — Eastland Oil Co., Jeff Love 1-B, sec 1594, spud in.

LA SALLE COUNTY—Frank Clark, B. K. Coleman 1, No. 514, blk 15, set 40 ft surface cas, re-dr.

LIVE OAK COUNTY—Catlett & O'Neill, H. D. Miller 1, Wm. Cabbon sur, dr 2500 ft. Live Oak Pet. Co., J. M. Harper 1, J. Poitevent sur (taken over from Harper) dr 500 ft.

McMULLEN COUNTY—Jacob, Buzzini & Pickett, Inc., J. Jacob 3-A, Sec. 8, W. H. Jacob sur No. 8, Jacob pool, sand 952-60 ft, clean out; J. Jacob 4-A, 660 ft w 3-A, lcn; Jacob 5-A, 660 ft n 2-A, lcn; J. Jacob 1-B, Section 15, GH&HRY sur, 1¼ mile n and e discovery, spud in; Jacob 1-C, Sec. 47, J. Poitevant sur, 2 mi nw field, lcn. Longhorn Oil Co. and

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls.—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; woc—wating for cement to set; wosr—waiting on standard rig.

American Gas Co., Lark 1, E. W. B. Scrugham sur, Calliham field, near Live Oak County line, dk.

MEDINA COUNTY — R. Robertson Drlg. Co., J. J. Little 1, BS&S sur No. 2, dr below 350 ft. Arnot and Fincke, New Cannon 1, blk 2, F. Memme sur, dk. Kyser and Roberts, Ward 3, Levi Taylor sur, lcn. Kyser and Nichols, Irwin 1, Levi Taylor sur, dk. R. M. Yantis, Adams 1, Fred Mumme sur, lcn.

NUECES COUNTY—Gulf Coast Oil Co., Perkins and La Casse 1, H. B. Shepherd sur, Saxet field, td 4556 ft, 6⅝ inch cas 4546 ft, blew in wild from 1650 ft sand, cratered around surface cas, still wild Elder 2, dr 1500 ft. V. G. Hillegeist, McGregor 1, sur 311, Saxet field, dr 4525 ft. Rutherford Drlg. Co., J. Hunter 1, Saxet field, sand 4808-12 ft, made sw when dr in, plug to 4100 ft, perforated cas. Stanolind O&G Co., King 2, sec 23, King Gas Field, dr 3480 ft.

REFUGIO—Humble O&R Co., M. V. O'Conner 1, J. Kesting sur, dr 4695 ft; O'Conner 2, J. Kesting sur, dr 4735 ft. Edwin M. Jones, Josephine Mitchell 1-B, Refugio Town lots, below 9000 ft. Larcro Gas & Pet. Co., Strauch 5, lot 6, blk 2, Refugio, dr 4225 ft. Pearson Properties, Ryals 2, dr 6200 ft. United Prod. Co., Fox 3, Hews and Brown sur, td 6620 ft, plug back to 6480 ft; Fox 4, Hews and Brown sur, dr 6435 ft; Fox 5, Hews and Brown sur, td 5886 ft.

SON PATRICIO COUNTY—Atlantic Oil Prod. Co., Welder 4, Welder Gas field, spud in.

STARR COUNTY—Allison & Roberts, Kelsey Bass 1, sec 6, spud in. Coastal O&G Co., Kelsey Bass 1, blk 52, dr 765 ft; Olivarez 1, share 35, por 80, to spud in. Day & Co., Kelsey Bass 1, sec 6, dr 410 ft. Frank Dawson, R. E. Margo 1, share 3-B, por 70, lcn. H. F. Griffith et al, Kelsey Bass 1, sec 11, dr 995 ft. Gulf Coast Oil Co., F. Doyono 1, blk 4, share 77, por 81, sp in. P. A. Hoffman, Goodrich 1, blk 6, tract 5, por 80, ru. Heard & Heard, blk 1, lot 1, tract 28-A, por 80, dr 1080 ft. H. E. Johnston, Fee 1, tract 32, por 80, dr 1410 ft. King Pin Oil Co., Lewis 1, Share 22, Por 80, dk. Frank LaBorde 1, Marroquin 1, tract 20, por 75, dr 516 ft. T. C. Patten, Kelsey Bass 1, sec 8, to re-dr 1050 ft. R. H. Pursely, Hinojosa 1, center blk 96, Rio Grande City, lcn. Smith et al, Lopez 1, blk 20, share 65, por 80, lcn. Tarver & Nance, Seabury et al 1, tract 21, w ½ por 79, skid dk from Guerra 1. Traylor-Munday & Flowers, Goodrich 1, blk 7, tract 5, por 80, dr 560 ft.

VICTORIA COUNTY — Cullen & West Keeran 1, Keeran area, dr 3980 ft. Houston Oil Co., A. M. McFadden 1-A, 1R No. 20 sur, dr 4420 ft. Humble O&R Co., Peter Rydolph 1, McFadden area, Kemper sur, move on rig. Texas Co., A. M. McFadden 4, J. M. Rine sur, McFadden area, trying to recover ds 2840 ft. Union Oil Co. of Nevada, Keeran 1, Keeran area, move in rig. Victoria Oil Co., Keeran 1, M. Leon sur, sand 5334-40 ft, show oil, set cas, woc.

WEBB COUNTY—Blair & Livingston, J. M. Garcia 1, sur 11, ru. Frank Clark, Puig Bros. 1, La Albercas Grant, Averton, lcn. French Oil Corp., R. Benavides 1-H, sur 659, West Cole, sp in. McGinley Corp., A. S. Billings 1, sec 71, blk 1, CCSD&RGNR sur, dr 935 ft. Phillip Rosenberg, D. Green 2, Sec. 233, dr 2135 ft. Thompkins & Edwards, Ortiz 1, sec 1808, GC&SF sur, dr 900 ft.

WILSON COUNTY—Aug. M. Blume, Nicholson 1-A, C. Diaz sur, move on. Sun Oil Co., Tudyk 1, nw part of county, unit block, dk.

ZAPATA COUNTY — Ballard & Mercer, Flores 1, blk 27, por 37, sand 2441-46 ft, recement cas, woc. H. H. Coffield, S. Bustamante 2, Fansler sur No. 34, lcn; Bustamante 3, lcn. Joe Cullinan, Gutierrez 1, Charco de la India Grant, dr 100 ft. Donohoo, Stevens & Brown, A. Garcia 1, Share A, blk 7, C. Redondo Grant, lcn. Hunt & Polk, Ramirez 1, Share A, Villa Grant, dr 675 ft. O. W. Killam, Medina 9, Share 34, Fansler sur, Escobas, ru; Hinnent 1, blk 45, sur 613, Mirando Valley, dk. McGinley Corp., G. C. Flores 1, sec 250, dr 1435 ft. L. O. Smith, M. G. Martinez 1, blk 18, share B, W. R. Duke sur, lcn. The Texas Co., Jennings 8, Cerrito Blanco Grant, Jennings, spud in. Windsor Oil Co., Martinez 1, blk 14, Charco Redondo Grant, dr 100 ft.

GULF COASTAL FIELDS

Further Success Promises Montgomery Drill Campaign. High Island Extended. Matagorda Deep Well Bailing.

WM. V. GROSS, *Staff Representative, Houston, Texas*

Colorado County Will Have Another Deep Test

Houston.—A second deep project for oil in Colorado County, V. F. (Doc) Neuhaus et al's Mattylee C. Barnett 1, is moving material on location. This well is being drilled for Adair and Daniels on a 9000-acre block.

The location is 230 feet from the west line and 330 feet from the south line of Section 26, Obid K. Winn survey, about five miles south of the town of Sheridan. The contract is to 4300 feet if production is not found shallower.

Another test being drilled in this county is Coyle-Concord Oil Company's Stewart Nelson 1, 10 miles east of Garwood in I.&G.N. survey No. 43. The test is on a 4000-acre block held by this company. The well is making hole below 2050 feet, its goal 6000 feet if production is not found shallower.

High Island Field Extended 2000 Feet

Houston.—Yount-Lee Oil Company, originally criticized as getting the worst end of the deal when it took over High Island field from Gulf Production Company, and more recently referred to as being a bear for punishment when it staked a location about 2000 feet northeast of production there in an attempt to extend the productive limits of Galveston County's only field, was in position to strut high, wide and handsome through the critics this week when Broussard and Orme 1 was brought in for 500 barrels, throwing open for future development—at the operators' leisure—an additional 2000 feet to the northeast. Offsets do not enter into production problems at High Island.

Yount-Lee Oil Company set one joint of screen in oil sand at 5320-40 feet in Broussard and Orme 1, followed by 60 feet of liner and a string of 2½-inch tubing. The well came in flowing 26.2 gravity oil through a quarter-inch choke. Later a second quarter-inch choke was added, with an attendant increase in production to 1048 barrels.

Four actively drilling wells in the field indicate an attempt upon the part of the operators to maintain the daily average production to 4500 barrels. Of the four, two have reached depths assuring completion before the end of July. Cade 28 is drilling near 5000 feet, while Cade 29 is nearing 4000 feet.

An effort to fill in part of the 2000 foot gap between Broussard and Orme 1 and settled production at High Island was manifested this week by rigging up on Broussard and Orme 2, 300 feet southeast of No. 1.

One well is drilling on the Nellie League land at High Island, and another on the Smith property, where Gulf Production Company did considerable prospecting before turning the field to Yount-Lee Oil Company.

Importance of Gueydan Increased by New Sand

Houston.—Gueydan's importance as a factor in petroleum reserves of the Gulf Coast was enhanced considerably during the week by performance of Pure Oil Company's discovery well of Louisiana's most recently proven dome when it was deepened to a sand 500 feet below the point at which the well was completed late in April.

It is very likely that additional drilling will be started soon at Gueydan by Shell Petroleum Corporation, Humble Oil & Refining Company, Magnolia Petroleum Company and Gulf Refining Company of Louisiana, as these organizations have offset leases to Pure Oil Company holdings. Lease play by independents and brokers recently has been fairly remote from the discovery well and to the north and east thereof.

The new deeper sand at Gueydan, found in Pure Oil Company's Alliance Trust Company 2 at 4009-29 feet, not only has more kick than the 3532-52-foot horizon, but is producing higher gravity oil without contamination.

In the upper sand, Alliance Trust 2 was completed for 200 barrels, with a tubing pressure of 285 pounds. This production had dropped to 40 barrels when the decision to deepen was made. Upon completion in the deeper sand, the well yielded 695 barrels initially, with a pressure of 310 pounds on seven sixteenths-inch choke on the 2½-inch tubing. By June 9 the production had settled to 470 barrels, but the pressure had increased to 1035 barrels, and no water had shown up.

Delay in announcing a new location after original completion of No. 2 by

Pure Oil Company came to an end with observation of the well's performance in the deeper sand. The next project will be Mulvey Irrigation Company 1, located 253 feet south and 390 feet east of the present producer. Both wells are in Section 34-11s-1w of Vermilion Parish.

Rabb Ridge to Continue Active in June and July

Houston.—With two new locations announced during the week, two other wells spudding, and four wells drilling at significant depths, Rabb Ridge may be expected to continue active throughout June and July.

Humble Oil & Refining Company and Gulf Production Company's F. I. Booth Estate 1, a direct north offset to T. R. Booth 1, property of the same operators, is the next well at Rabb Ridge scheduled for completion, as it is drillnig below 5100 feet. If events take a natural course, it will be followed shortly by George B-1, drilling below 4700 feet.

The Texas Company's Wolters B-1, located 2750 feet north of T. R. Booth 1, was drilling below 3150 feet June 10 in an effort to effect a northerly extension of 2750 feet. Its completion may cause a shift of activities to the northern sector of the field as a matter of protection.

During the week Humble and Gulf completed H. P. Lockwood 3, 1000 feet east of No. 2 and in the John Rabb Survey, for 1300 barrels through a three eighths-inch choke. The well, which gauged a pressure of 500 pounds, was bottomed at 5323 feet. Production from H. P. Lockwood 3 may hold the field's daily average figure around 11,900 barrels until additional flush is added.

Lost Lake Extended 450 Feet North by Pure Oil

Houston.—Productive limits of Lost Lake field, Chambers County, were extended 450 feet in a northerly direction when Pure Oil Company brought in Mayes 15 at 2800 feet for an initial production estimated at 398 barrels of 22.4 gravity oil. The production is flowing through a three eighths-inch choke on 2½-inch tubing, which gauges a pressure of 135 pounds.

Mayes 15 is 450 feet northeast of Mayes 11 and 450 feet northwest of Mayes 14. Completion of Mayes 15 will occasion no offset drilling, Pure Oil Company being the only operator in the field.

Beach Area Is Focal Point of Gulf Coast Interest

Houston.—Possibilities of a lively drilling campaign around the new Beach area in Montgomery County loom as a result of new locations announced this week and negotiations, actual and rumored, for attractive acreage by parties in a position to wage necessary offset battles which apparently will be necessitated if the "big saline" theory of the field continues to be substantiated. Beach is the focal point of Gulf Coast interest.

Humble Oil & Refining Company, which already has manifested enough interest in the area to pay $500,000 cash for looking at the results of four wells to be drilled, two by Strake Oil Corporation and two by Humble Oil & Refining Company before deciding to exercise an option to buy Strake Oil Corporation's holdings for $3,500,000 out of oil, this week was negotiating for the 826-acre A. A. and D. A. Madeley tract in the Ransom House Survey, which adjoins the 1476-acre South Texas Development Company tract on the southeast. The discovery well of Beach is located on the latter. Eagle Oil Company and L. M. Jose of Houston each hold an undivided half interest in the 826 acres. Jose has closed with the Humble Oil & Refining Company for 350 acres of his share, retaining 63 acres according to an announcement coming from his Houston office.

Eagle Oil Company, holding about 1500 acres in the field, of which half of the Madeley tract is a part, had not closed with Humble Oil & Refining Company for the Medeley property June 10, although negotiations were underway. However, several larger operators, including Atlantic Oil Producing Company, are nibbling for Eagle Oil Corporation holdings. The latter is not going to close until all bids are on the table, according to one of the executives. Eagle Oil Corporation, incidentally, has attractive holdings whether the field is played for a saline, a salt dome, or a fault, as played by Herman Heep, Sun Oil Company and Gulf Production Company in the early days of the young field.

George Bevier, who has done more geological work on the area than perhaps any other man and who believes strongly in existence of a large salt dome southeast of the discovery well, was negotiating with several companies this week for the sale of part of his properties in the Lemuel Smith Survey, Ransom House Survey, Wilson Strickland Survey, and Tom Trevathan Survey. The latter is adjacent to the south side of the Ransom House Survey.

Other Buyers Interested

Herman Heep, president of Heep Oil Corporation who brought Freeman 1 in for about 1100 barrels this week to extend the field in an easterly direction, left shortly after the well's completion for Dallas, Texas, where he was negotiating for the sale of all or part of Heep Oil Corporation's holdings, according to reports. This corporation holds substantial blocks of acreage to the north, east and south of the discovery well, and like Eagle Oil Corporation, seems protected regardless of the trend production takes. Magnolia Petroleum Company, Atlantic Oil Producing Company and Sun Oil Company, do not have acreage in the Beach area commensurate with the generally accepted scope of their production schedules. Mr. Heep could not be located in Houston June 10 for verification of the rumor and his office did not know at that time where he could be located in Dallas.

Regardless of the outcome of the many pending lease deals, enough new locations were announced for the field this week to assure a lively drilling campaign. The Texas Railroad Commission has announced it will hold a meeting in Houston during June to take action with reference to proration in Montgomery County. Emergency rules, based somewhat on the rules governing production in the East Texas field, will be issued to control production from the area until the Houston hearing can be held.

Playing the saline theory, Heep Oil Corporation will drill a well south of the discovery well on the east half of the George Hamman 232.5-acre tract. George Hamman 1 will be 450 feet each way out of the northeast corner of the tract. North of the discovery well, Rowe and Flowers have erected a derrick on the Mrs. M. H. Alexander property in the A. McCown Survey. East of the discovery well C. C. Steinberger has made a location in the northeast corner of the C. C. Steinberger 215-acre tract in the John A. Davis Survey. This location is about a quarter of a mile east and south of Heep Oil Corporation's Freeman 1. To the southeast, in the region Mr. Bevier has played for a dome, Edwin Falvey et al have made a location for W. P. McComb et al 1 in the northwest corner of

the McComb 160-acre tract in the Lemuel Smith Survey. Still further southeast, Giescke and Craft have made a location for South Texas Development Company 1 in the T&NO RR Survey No. 9.

The above locations, with drilling wells under way on the north, east and south flanks of the region, assure activity for several months. From now until such time as lease lines have been protected, most of the completions will call for offsets. Humble Oil & Refining Company is reported to be shipping five rigs into the area.

Area As Defined

Completions thus far in the field, running from Strake Oil Corporation's South Texas Development Company 2 to Heep Oil Corporation's Freeman 1, including in between these extremes Strake's South Texas Development Company 1 and Heep's Cartwright 1, describe a rough curve which might be taken, by a stretch of imagination, to constitute the northern boundary or a northern contour of a big saline. Drilling wells and locations announced tend to complete the circle, roughly.

Heep Oil Corporation's Mrs. M. E. Roberts 1, about 10,000 feet north of South Texas Development Company 1, is the next well due for completion, the bit having passed 4800 feet. Its formations are checking fairly well with those of the Freeman well. Smith and McDaniels, drilling Sealey 1 in the J. C. Pitt Survey, have passed 4300 feet. Rowe and Flowers have a derrick up on Varner Realty Company 1 in the Ransom House Survey.

Completion this week of Heep Oil Corporation's Freeman 1 gave the field a span of 12,000 feet from west to east. The well, completed at 5121 feet, set screen in 21 feet of sand and produced 1100 barrels through two three-eighths-inch chokes, one on the tubing and one on the casing. Strake Oil Corporation's South Texas Development Company 2, completed a few days previous for a 2200-foot southerly extension of the field, had about the same initial yield but drilled only to 5026 feet. Its tubing pressure was 750 pounds; casing pressure, 900 pounds.

Outcome of Buckeye Test Is Awaited With Interest

Houston.—Bailing progress on the United North & South Development Company's deep wildcat in the Buckeye Townsite district of Matagorda County will be watched with interest for several days to determine what may be expected of the area in the way of flush production.

Stoddard 1, now bailing at 7829 feet, will be the deepest commercial producer in the Gulf Coast if expectations of those in charge of drilling are realized. Two weeks ago the well flowed by heads at the rate of nearly 200 barrels of 38 gravity oil per day, but its completion was delayed because of a lost bailer and line.

June 9 the bailer had been recovered and a new liner set. Bailing, expected to last about six days due to the depth of the well and the nature of the mud used, commenced as soon as the liner-setting job was pronounced satisfactory.

Next Cheek Test to Be Located by Reflection

Houston.—If Jack Schultz's O. M. Todd 1, wildcat prospect of Cheek dome in Jefferson County, does not make an oil well after penetrating about 200 feet more of the Marginulina, which was topped at 6665 feet, the area will be subjected to reflection shooting before location for the second prospect is determined.

June 10, O. M. Todd 1 was reaming in the Marginulina at 6674 feet, with intention of coring ahead for oil sands the operators hope to find within this formation.

For geologic record, a few Discorbis specimens were picked up at 6187 feet. In a core taken at 6240 feet they were plentiful. The Heterostegina lime was topped at 6415 feet.

Commission Will Hold Montgomery Hearing

Austin, Texas.—The Texas Railroad Commission will place emergency rules on the Montgomery County field within the next few days, it was learned from an authentic source.

These rules, based on the present orders in force in East Texas, will remain in force until a hearing is had to determine proper orders for the Conroe area.

C. V. Terrell, chairman of the commission, has stated that a hearing will be held in Houston later in the month to determine how the field shall be handled.

Gulf Coast Anticipates Increased Drilling

Houston.—Exclusive of those permits to drill granted by state departments to operators, new locations showing up on wildcat and field reports for the Gulf Coast of Texas and Louisiana since June 1 total 29, presaging a summer of active drilling and a probable increase in field and wildcat activity for the second half of the year over the first half.

In addition to these 29 locations, scattered over 12 counties and parishes, there is a noticeable trend toward working over old producers in the proven fields of the two states, a further indication of activity.

Two other factors will contribute noticeably as time passes to an increased activity in the Gulf Coast for the remainder of the year. These are the flush area in Montgomery County referred to as the Beach, or Conroe, field, and the recently proven Gueydan dome in Vermilion Parish, Louisiana.

Sinclair Awarded Navy Lubricant Contract

NEW YORK, JUNE 7.

Sinclair Refining Company has been awarded the United States government contract for lubricants for the U. S. Navy and other branches of the government operating under the Navy lubricating contract during the fiscal year 1932-33. The award to Sinclair Refining Company includes all the lubricating oils to be used by United States battleships, destroyers, submarines, naval aircraft and equipment at all Atlantic ports.

Gulf Coast Field Developments

Completions

LOUISIANA GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
EAST HACKBERRY FIELD—		
Calcasieu Oil Co., Dorion 8	*	2921
GUEYDAN DOME—		
Pure Oil Co., Alliance Tr. Co. 2 (wo)	695	4029
JEFFERSON ISLAND DOME—		
Jefferson Lake Oil Co., Lake Peigneur 33	*	1024
OLD HACKBERRY FIELD—		
R. E. Seiss, Tr., J. M. Vincent 2	*	2950
STARKS DOME—		
Gulf Refining Co., Lutcher Moore 30	15	875
TERREBONNE PARISH—		
United Gas Public Service Corp., Minor Estate 2	*	6002

TEXAS GULF COAST

BEACH AREA (Montgomery County)—		
Strake Oil Corp., So. Texas Dev. Co. 2	1164	5026
ESPERSON DOME—		
Cranfill-Reynolds, Esperson 20	300	3082
HIGH ISLAND FIELD—		
Yount Lee Oil Co., Broussard & Orme 1	500	5340
HULL FIELD—		
Republic Production Co., Dolbear 61	300	2400
HUMBLE FIELD—		
The Texas Co., W. & P. Fee 25	*	1740
Sun Oil Co., River 53	35	1328
LOST LAKE FIELD—		
Pure Oil Co., Mayes 14	398	2800
MARKHAM FIELD—		
Hamill et al, Sisk 2	410	3226
MOSS BLUFF FIELD—		
Texas Gulf Sulphur Co., Dan Harrison 7	*	1313
ROCKLAND DISTRICT (Jasper County)—		
Rio Neches Oil Co., Boykin A-2	40	1277

LOUISIANA FIELDS

Zwolle Field Operations Held In Balance. Three Sabine County Wildcat Tests Hold Interest.

Staff Correspondent, Shreveport, La.

Both Zwolle Deep Tests Report Salt Water Shows

Shreveport, La.—Salt water developed in both of the Trinity zone tests being drilled in the Zwolle field during the past week. R. L. Gay, Trustee's Long-Bell Lumber Company A-1, NW NW Section 10-8-13, five miles north of Zwolle production, encountered a soft formation from 5745 to 5760 feet that carried salt water, but quick action in pumping in two tons of baroids prevented a blowout and later a core was taken from 5760 to 5764 feet, the first part of which was gummy shale and the lower part hard black shale which carried a pronounced oil odor, but had a brackish taste. Gay is believed to have reached base of the anhydrites in the Glen Rose at 5715 feet, the last 21 feet above this level logging shale with streaks of anhydrites. A definite anhydrite formation was logged from 5662 to 5677 feet. Previously the well had logged a few inches of this substance at 5490 and 5580 feet. This is the deepest test ever drilled in Sabine Parish.

Eight miles southeast of this test, Loring Oil Company ran into a heavy salt water flow at 5272 feet, the water testing 172 degrees. Operators are also trying to kill the flow with baroid.

Five miles northwest of Zwolle production, J. J. Kean pulled six-inch casing, after penetrating three feet of lower Cretaceous to 3128 feet, and plugged back to 1600 feet to test the top of the Zwolle chalk, having previously set eight-inch casing at 1590 feet. The plug gave way while bailing and another plug is being set.

Seven Completions, Seven New Starts at Zwolle

Shreveport, La.—Seven wells were completed in the Zwolle field, of which five were oil producers, during the week ending June 8. The largest of the producers was Sabine Production Company's Sabine 1, NE NW SE Section 3-7-13, in the southwest offshoot of the Zwolle townsite part of the field, which is flowing 1500 barrels of oil daily from chalk at 2405 feet. Zwolle marl was logged at 2076 feet and six-inch casing cemented at 2046 feet. The marl in this part of the field above the chalk is thinned out to only a few feet. This well is one-fourth mile east of Pelican Natural Gas Company's Sabine 8 in the same section recently completed as a 300-barrel producer in chalk.

In the same part of the field Dengail Oil Company's Nulton E-1, Section 1-7-13, gauged 385 barrels of oil daily, at 2342 feet in chalk. The other three producers were small wells in the southeast part of the field.

Seven new locations were announced in the general Zwolle area last week, of which three are classed as wildcats.

On June 4 the following was the status of Zwolle operations: 30 locations; 15 derricks, four rigging up; three setting surface casing; five waiting on standard rig, 16 drilling; one bailing; five setting casing; and 11 shut down.

Sabine Parish Test Finds Zwolle Markers High

Shreveport, La.—Two and one-half miles north of the four wells which produced oil in the west Zwolle (Blue Lake) district, Sabine Parish, Broderick and Calvert's Costullo 1, NE SE NW Section 2-7-14, on Tuesday, June 7, topped the Zwolle marl at 1952 feet, later coring three feet into this formation. Six and five-eighths-inch casing will be set at the contact point. With estimated elevation of 160 feet, this well on this contact logged about 180 feet higher than the wells in Blue Lake.

Added interest to the high checking of this test is the fact that a fortnight ago, Ridgeway and associates' Polley 1, Domingo Gonzales Survey, Shelby County, Texas, five miles northwest of Blue Lake, logged Zwolle marl at 1928 feet, checking 160 feet higher than Blue Lake wells. Casing was cemented at 1933 feet, with total depth of 1949 feet, but the well had not yet been drilled in.

Louisiana Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH—		
Miller et al, Newell 1, 12-19-11....	*	485
SABINE PARISH (Zwolle)—		
O. J. Baird, Duggan 2, 14-7-11	10	2509
Dengail Oil Co., Nulton E-1, 1-7-13	385	2342
E. F. Neely, Cobb-Alford 1, 14-7-11	25	2562
Pelican Nat. Gas Co., La. Long Leaf 4, 9-7-11	20	2500
Sabine Prod. Co., Sabine 1, 3-7-13..	1500	2405
Depression Oil Co., Peters 1, 11-7-11	*	2558
D. Holcomb, Retty 1, 12-7-11	*	2626
SABINE PARISH (Pleasant Hill)—		
R. L. Bridges, Armstrong 1, 28-10-11	*	3304

New Operations

CAMERON PARISH—Moon Oil Co., Lake Charles, Breaux 1, 46-12-9, 35 ft s and e nw cor sec.

SABINE PARISH—Williams & Spier, Many, La., Williams 1, 3-8n-10w, 330 ft n and w se cor se¼ sw¼ sec. W. E. Lacy, City, McNeely 3, 14-7n-11w, 260 ft s and 175 ft e nw cor ne¼ ne¼ sec. Coats Pet. Corp., City, Geay 1, 3-7n-13w, 330 ft s and w ne cor se¼ sw¼ sec; Nulton 1, 1-7n-13w, 330 ft s and 224 ft e nw cor sw¼ nw¼ sec; T. Laraux 1, 36-8n-13w, 330 ft n and e sw cor se¼ sec; Hill 2, 35-8n-13w, 330 ft n and e sw cor se¼ sw¼ sec. D. S. Arnold, City, R. L. Gay 1, 16-7n-13w, 300 ft s and w ne cor sec. C. D. Neff, Tr., Shreveport, Stoker 1, 10-7n-11w, 200 ft n and 200 ft w se cor of ne¼ ne¼ sw¼ of sec.

TERREBONNE PARISH — Freeport Sulphur Co., Houma, La., Wurzlow 3, 17-22s-18e, 1070 ft w and 1520 ft s ne cor sec.

Wildcat Drilling Report

(Wells shut down not included)

CALDWELL PARISH—Carter Bell et al, A. R. Taylor 1, 17-14-4e, sd 3450 ft.

DE SOTO PARISH—J. M. Bridges, Joiner 1, se nw nw 33-11-12, dk. E. T. Oakes, Johnson 1, 30-13-15, core 3642 ft. Smith et al, Horn 1, 16-12-16, lcn abn. De Soto Dev. Co., Nickie 1, 7-13-12, dk. Donly Bros. H. Smith 1, 31-14-15, sr, td 2295 ft. Standard Oil Co. of La., Sutherlin 1, 19-12-14, Annona chalk 1590-1860 ft, trying to blow out, td 2782 ft. S. A. Guy, Dowling 1, 31-14-14, top chalk 1650 ft, dr chalk 1970 ft. Coker et al, Boone 1, sw nw 12-10-11, dk.

GRANT PARISH—Robichaux et al, Bradford 1, 16-9-1e, dk.

NATCHITOCHES PARISH — Southland Drilling Co., Ross Olive 1, 10-9-10, 12½ cas 110 ft, dr 1900 ft. Dr. H. S. Gerson et al, Smith 1, 11-10-8w, dr shale 1815 ft; Smith 3, 6-10-8w, lcn. H. W. Perritt, Cook 1, 3-8-9, setting 6-inch cas 2375 ft. Rains et al, Beard 1, 8-8-10, dk. Texana Oil Co., Clarke-Morse 1, 23-5-6w, sr at 2080 ft, td 2504 ft.

OUACHITA PARISH—Wilson & Mitchell, W. L. Williams 1, 5-16-1e, sd 3285 ft.

RED RIVER PARISH—C. F. Davis, Peterson 1, sw nw 12-14-11, dk pat. Petroleum Industries, Inc., (formerly Lawrence Deckett, Tr.), Madden 1, sw ne 21-14-10, rig.

SABINE PARISH—J. J. Kean, Belton 1, 31-9-13, elev 232.7 ft, pulled 6-inch cas, cemented off at 1600 ft, plug gave way while bailing to test top of chalk at 1600 ft, arr re-cement plug, old td 3128 ft. R. L. Gay, Tr., Long-Bell A-1, nw nw 10-8-13, anhydrites at 5490 and 5580 ft, anhydrites 5662-77 ft, 5693-5715 ft shale strks anhydrites, showed sw from 5745-60 ft, pumped in baroid, core 5760-64 ft shale with oil odor, arr core, td 5764 ft. J. H. Askew, Sabine 1, ne nw 9-7-13, 6-inch 2002 ft, dr 2015 ft. Geo. LeGrand, McGowan 1, nw nw 2-8-10, dr 1050 ft. Loring Oil Co., Bowman-Hicks 18 15-7-12, flowing sw (172 degrees), 5272 ft, arr pump in baroid. State Prod. Co., Davis 1, 17-7-10, cemtd 6-inch 2638 ft; Davis B-1, 17-7-10, dr. King, Tr., Davis 1, 29-7-11, lcn. G. E. Jordan, Dew 1, sw se 34-8-11, dk pat. C. H. Tuttle, Byrd 2, nw nw 7-7-10, sd for water, 1850 ft. R. E. Davidson, Davis 1, 28-7-11, dk. S. A. Lane et al, DeKeyser 1, nw ne 23-7-11, sd 1800 ft. Covington, Clark et al, Bill Bray 1, se nw 32-7-11, dk. Supreme Oil Co., Pruitt 1, se sw 30-8-11, dk. Broderick & Calvert, Costullo 1, se nw 2-7-14, elev 160 ft, top marl 1952 ft, cored marl to 1955 ft, arr set 6⅝ cas at 1952 ft. A. F. Tarver, Stoker 1, 34-8-10, lcn. N. A. Sims, Peterson 1, se nw 34-7-13, lcn. Howard Russell, Porter 1, se se 7-7-11, lcn.

VERNON PARISH — Llano Cooperative Colony, Fee 1, nw ne 34-2n-9w, dk.

NEW MEXICO . . . ROCKY MOUNTAIN

Summer Drilling Campaign Gets Underway With Many Spots Active.

Osage Crude In Good Demand.

Staff Correspondent, Casper, Wyoming

International Border Field In Busy Drilling Period

Great Falls, Mont.—The Whitlash field which lies across the border of northern Liberty County in Montana and southern Alberta, will have five, and perhaps eight, active operations under way before the end of this month. The field was proved for oil production last year by Western Natural Gas Company which was drilling for an augmented natural gas supply for Great Falls. The well has stood through the winter with no attempt made to drill it deeper to the Sunburst sand; whenever it was opened up it produced 20 barrels per day steadily, for which there was no market at the time. Now, however, there is a very good demand for oil in northern Montana, and as a result various interests are entering the new oil territory for further exploration.

Whitlash Petroleum Company is spudding on NW NE Section 26-37-4e. Interests identified with W. E. Rice are announcing locations for two new wells, Oklahoma capital is backing another, and A. E. Crumley will drill still another. Other operators signify their plan of entering the field, and indications are now that the district will probably be the busiest in the state this year. In addition, at least two wells will be drilled on the Canadian side where the structure is known as the Reserve Dome.

Midway Dome Promises Well in Second Wall Creek

Casper, Wyo.—Although probably another week will be required before definite knowledge may be had of the producing at Midway dome, there are indications that Mutual Oil Syndicate is probably getting at least a fair producer in the second Wall Creek sand topped at 5233 feet, the well is standing cemented at that depth, 30 feet in the sand, the first five or six feet of which were dry, but after which saturation of both oil and gas was seemingly very heavy.

The Midway Dome discovery well was completed two years ago by Midwest Refining Company. It has been producing about 60 barrels per day from the second Wall Creek, but last week after cleaning out it is producing more than 200 barrels per day. Completion of another good producer at Midway will mean considerable to central Wyoming in particular and to the Rocky Mountain states in general. It will be another encouragement to deep drilling in the territory, also.

Osage Summer Drilling Off to a Good Start

Osage, Wyo.—The season's drilling campaign in the Osage field in eastern Wyoming opened up last week with real emphasis. Seven new operations were rigging up or spudding, one very good well was completed, and one test in the old part of the field was making good drilling progress. The completion is Federal Oil Company's No. 2, NE SE Section 15-46-64, which had an intial production of 300 barrels per day of high gravity oil, natural. It is one of the best completions to be made in the field in recent months.

There is an excellent market for Osage crude, and eight skimming plants in the field are running to full capacity day and night to supply a good local market. About 1000 barrels per day is shipped from the field to Montana refineries, and most operators receive a price of $1.25 per barrel, minimum. The field will be one of the busiest in the Rocky Mountain states this summer; probably 15 rigs will be working before the end of the month. The oil has a very high gravity, being 37.3 degrees.

Rocky Mountain Field Developments

NEW MEXICO

Wildcat Drilling Report

(Wells shut down not included)

BERNALILLO COUNTY— Norrins Realty, Pajarito Grant 1, 22-9n-1e, fsh cas 1275 ft.

CHAVES COUNTY — Warman Oil Trust, Evans 1, 15-14s-25e, dd from 1162 ft. R. D. Compton, sw se 20-10s-24, mvg in.

CURRY COUNTY—G. L. Trout, 24-2n-31, sd, may abandon. Southwest Oil Production Co., 15-5n-33, 958 ft.

DE BACA COUNTY—Montgomery et al, Wood 1, sw 6-4n-20e, fsh tools, 4662 ft. Landowners Oil Co., State 1, ne 16-1s-27e, dr and carry 6¼-inch 4827 ft.

DONA ANA COUNTY—Middle States O&G Co., Boretzi 1, 14-26-5e, rigged.

GUADALUPE COUNTY—N. M. Prod. & Ref. Co., McMillan 1, 24-5n-16e, dr bel 4338 ft.

HARDING COUNTY — Carbon Dioxide Corporation, Tinsley 1, 31-21n-31, lcn.

LEA COUNTY—Baker Oil Co., Inc., sw nw 15-13s-33e, lcn.

LUNA COUNTY—Angelus O&M Co., State 3, se 30-21-10, try to reset casnig 6171 ft.

RIO ARRIBA COUNTY—Governador Oil Co.'s 1, se 15-29n-7w, set casing 2070 ft.

ROOSEVELT COUNTY—Peterson Oil Co., Good 1, se ne 32-5s-30e, rig up.

SAN MIGUEL COUNTY—Cabra Springs O&G Co., Thompson 1, ne 21-12-22, changing to steam power, td 2540 ft.

COLORADO

Completions

Company, Well and Location	Initial Production Bbls.	Depth
FREMONT COUNTY—		
Waterville Oil Co., State 1, sw se nw 16-18s-69w, abn.....	*	1790
MONTROSE COUNTY—		
Uncompagre O&G Co., 1, se sw nw 27-50-10, abn at	*	2031

New Operations

MONTEZUMA COUNTY—Oliver, Downey, Smith et al, nw ne 31-36-17w, rigging up.

Wildcat Drilling Report

(Wells shut down not included)

ADAMS COUNTY—Hills Dome Lease Dev. Co., se 27-3s-54w, stand cem 4025 ft.

ARAPAHOE COUNTY—McDeb Drlg. Co., Fitzsimons 1, ne 7-4s-68w, dr 6111 ft.

ARCHULETA COUNTY — Oil City Pete Co., Fitzhugh 1, sw 34-33n-13, sd for pipe, gas showing 717 ft.

EL PASO COUNTY—Gulf States Oil Corporation, Carson 2, ne 10-16s-66w, td 1900 ft.

GRAND COUNTY—Oil & Mineral Lands, Inc., McElroy 1, se sw 14-2n-81, resuming at 618 ft.

JEFFERSON COUNTY—Ruby Hill O&G Co., Braden 1, se 24-4s-69w, wait 4¾ inch 4280 ft.

LA PLATA COUNTY—McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, rig up. Phipps et al, sw 9-33-13, td 520 ft.

LARIMER COUNTY—Mayer et al, Reed 1, nw 28-4-60, fsh tools 3800 ft.

MONTROSE COUNTY—Uncompaghre O. & G. Co., Vandemark 2, 27-50n-10, preparing to resume at 800 ft.

MONTEZUMA COUNTY—Oliver, Downey, Smith et al, nw ne 31-36-17w, rigging up.

PARK COUNTY — South Park O&G Co., Milligan 1, se 13-8s-76w, cem cave and sd 2912 ft. South Park Oil Co., Esche 1, ne 5-9s-76w, sd 2470 ft.

RIO BLANCO COUNTY—California Co.'s Raven 1, se 20-2n-102, dr 5280 ft. Magnolia Pete Co., Maddock 1, nw se 9-2s-96w, dr out cement 2417 ft.

WELD COUNTY — Tulsa-Ft. Morgan Oil Co.'s Arthes 1, ne ne 24-8n-59w, dr 1400 ft. Weld Royalties Co., se 29-9n-61, spuddnig. Retter Oil Co., Cronin 2, sw sw 24-1n-66w, dr below 350 ft. Ohio Oil Co., Butters 1, 7-6n-60w, rig up. Manning & Terry, Niles 1, ne se 13-6n-61w, moving in, cellar and pits completed. Reiter-Foster Oil Corporation, Johnson-Juhl 1, se 14-6n-61w, preparing to shoot base of Niobrara 6263 ft.

MONTANA

New Operations

LIBERTY COUNTY (Whitlash Field)—Oiens et al, Hicks 1, se ne 26-37-4e. R. C. White et al, Hicks 1, ne ne 27-37-4e. Teter & Strawn, Shafer 1, sw sw 24-37-4e. Postlewaite et al, sw ne 26-37-4e. A. E. Crumley, Strode 1, nw ne 35-37-4e.

Wildcat Drilling Report

(Wells shut down not included)

BROADWATER COUNTY—Capitol O&G Co., nw 7-8n-1e, dr below 2050 ft.

CARBON COUNTY—Corbett Royalty Co., sw se 1-16s-23e, more oil showing 1155 ft. Jack Creek O&G Co., se 15-7s-23e, rigged and ready to spud. Midland Oil Co., nw 24-6s-23e, dr below 400 ft. Ohio Oil Co., Kutchinski 1, 15-7s-21e, stnading cemented in Frontier at 5000 ft.

CARTER COUNTY—E. T. Moorehead, sw 34-4s-57w, wait for 12½ inch at 350 ft.

CASCADE COUNTY—Buscher & Cassady, Johnson 1, se 19-22-3e, wait for Merz test, td 1387 ft. Charles Merz et al, Sheffels 1, nw 4-21-4e, dr 1350 ft.

FALLON COUNTY—H. W. MacDonald's 1, sw 28-8n-60e, standing cemented 1682 ft.

FERGUS COUNTY — Melton Corporation's

1, sw 24-21n-17e, dr and carry 8¼ inch 3150 ft. Landheim-Romunstad 2, ne 3-17n-20e, set 6⅝ inch at 2116 ft, td 2600 ft.

GALLATIN COUNTY — Montana Gas & Pete Corp., Adams 1, 35-1n-2e, dr 1650 ft. Gallatin Valley Oil Co., Haglund 1, sw 13-34-6w, to resume at 2539 ft.

GLACIER COUNTY—Finn et al, McLellan 1, nw se 12-34-6w, rig up, waiting for financing. Blackfeet Petroleum, ne 28-36-12w, rig up to resume 2947 ft. Jeffereies et al, se ne 17-31n-12w, preparing to move in standard tools 2980 ft. Tarrant et al's Haglund 1, nw se 13-34-6w, try to dr up pipe 2835 ft. Browning Development Co., Reickhoff 1, ne 3-34-6w, rigging up.

GOLDEN VALLEY COUNTY — Golden Valley Oil Co., 2-6n-22, dr below 3165 ft.

LIBERTY COUNTY—Whitlash Petroleum Co., Hicks 1, nw ne 26-37-4e, spudding. Northland O&G Corporation, Yurman 1, sw 32-33-5e, prepared to resume at 2815 ft. Peoples O&G Co., nw 17-36-6e, pipe sidetracked, 10-inch at 1050 ft, td 2000 ft.

MUSSELSHELL COUNTY — Minnesota-Flatwillow Pete Co.'s 1, sw 7-11-31e, prep to dd from 2760 ft.

PHILLIPS COUNTY—St. Cloud O&G Co., sw ne 20-24n-24e, rig up.

PONDERA COUNTY—Bell-Adams' Venetz 1, ne 31-27-4w, repairing boiler, will dr water well 920 ft.

SWEETWATER COUNTY—Shoshone Consolidated Oil Co., nw nw 23-2n-15e, fishing 5785 ft.

TETON COUNTY — California Co.'s Sullivan 1, nw 34-28-7s, dr and carry casing 2850 ft. Earl Oil Co., ne se 22-22n-8w, to resume at 3860 ft.

TOOLE COUNTY—Oregon Syndicate, se 20-36-2e, trying to pull casing to plug back from 2580 ft. Texas Co.'s International Land 1, se sw 6-36-4w, dr 500 ft.

VALLEY COUNTY—Opheim O&G Co., ne 28-37n-38e, mvg in.

YELLOWSTONE COUNTY—Spokane-Laurel Oil Co., sw se 30-2s-24e, standing for orders 580 ft. Peter Antonioli, ne ne 2-2n-25e, standing in Colorado, ready to dr ahead 2370 ft.

WYOMING

Completions

Company, Well and Location	Initial Production Bbls.	Depth
WESTON COUNTY (Osage Field)—		
Federal Oil Co.'s No. 2, ne se 15-46-64	200	2075

New Operations

WESTON COUNTY (Osage Field)—Lambie Oil Co., Julius Bock 8, sw nw 14-46-64. Central Oil Co., 1, ne ne sw 15-46-64. Carl Cundy, 3, ne nw ne 31-46-63. Chadron-Osage Oil Co.'s s½, 14-46-64. General Oil Co., sw nw 15-46-64. Riggs Oil Co., s½ ne¼ 16-46-64. Yellowstone Petroleum Co., Inc., n½ nw¼ 23-46-64.

Wildcat Drilling Report

(Wells shut down not included)

CARBON COUNTY—Prairie O&G Co., 1, 29-37-89, standing cemented in Lakota at 6165 ft. Midwest Refining Co.'s U. P. 27, 27-11-81, ready to start drilling 4025 ft.

CONVERSE COUNTY — John Ackard, se 24-33-72.

FREMONT COUNTY—Wiebolt et al, 35-33-99, abn, may dr new hole 2670 ft. Ward O&G Co., 28-34-90, rigging up. Yellowstone Oil Co., Gabus 1, sw 14-38n-94w, dr below 1355 ft.

LINCOLN COUNTY—H. C. Harris et al, se 14-21n-117w, dr 1540 ft.

NATRONA COUNTY—Mutual Oil Synd., Midway 2, sw se 14-36-79, stand cem., td 5353 ft.

SHERIDAN COUNTY—R. & D. Oil Co., nw se 21-57-97w, sd around 1450 ft.

UINTA COUNTY—Transwestern Pete Co., Ltd., (Doheny), 6-14n-118, resuming 3216 ft. Park City O&G Co., ne nw 16-15n-113w, dr 2950 ft.

WASHAKIE COUNTY—Bales Oil Trust, Brome 1, ne nw 31-48n-90w, run 8¼ inch to bottom 1105 ft.

WESTON COUNTY—Julius Peters et al, Weitzell 1, sw nw 30-46-64, dr below 3900 ft. Gose Synd., ne 28-37n-63w, ur to lower 6¼ inch, td 5050 ft. LeFaivre Oil Synd., nw se 29-45n-68w, to resume soon, td 1800 ft.

SOUTHEASTERN STATES

Tidal et al May Go Deeper in Alabama Wildcat Test. Central and Northeast Mississippi Tests Planned.

Block Central Mississippi Tract for 3500-Foot Test

Jackson, Miss.—B. B. Jones and associates have blocked approximately 30,000 acres in Jasper County, east central Mississippi, west of the Hatchetigbee anticline, on which magnetometer work has been done. A 3500-foot test is contemplated after detail work is done on the block by two geologists, Arthur C. Trowbridge and Urban B. Hughes.

Negotiations are reported under way between Humble Oil & Refining Company and John Glassell, Jackson gas operator, for a rig to be used to drill a test, probably to 2500 feet on the former's big block in Wilkinson County, southwest Mississippi. The main idea of this test, it is reported, would be to gain some definite idea as to depth of some definite marker for future operations in that area.

Florida Wildcat Shows Salt Water on Drill Stem Test

Pensacola, Fla. — Suwanee Petroleum Corporation made a test in Sholtz 1, Section 9-15s-13e, Levy County, Florida, at 4010 feet. The testing tool secured a complete shut-off at 3998 feet and tested 12 feet of sand and in half an hour filled with salt water to within 200 feet of the top. The test is shut down waiting orders.

Oil City Corporation's Walton Land & Timber Company 1, NE NW Section 12-1n-19w, Walton County, Florida, last week was drilling Eutaw black shale with streaks of black sand at 5030 feet.

Clarke County, Alabama, Test Passes Contract Depth

Jackson, Ala.—Tidal Oil Company, Ramsey Petroleum Company and Danciger Oil & Refining Company's Everett and Boykin 1, NE SE Section 33-6n-2e, Clarke County, Alabama, during the past week reached its contract depth of 3500 feet and was down in sand, possibly Tuscaloosa, at 3523 feet; elevation is 65 feet.

An effort is being made to secure cooperation from several other companies to continue this test deeper, as an exploration test, possibly to the basal rock. The test on the contact of the Tuscaloosa red beds checked 1855 feet above normal, or the equivalent of 5355 feet of section of the Jackson Fault penetrated at the contract depth. The Jackson Fault is a part of the Hatchetigbee Anticline.

Start Wildcat Test in Northeast Mississippi

Jackson, Miss.—P. J. McAlpine and associates are rigging up for Charles Rye 1, SE NW Section 22-15s-17w, a wildcat in Monroe County, northeast Mississippi. This location is one-fourth mile southwest of Arkansas Natural Gas Corporation's F. L. Rye 1, NW NE NW Section 22-15-17w, completed as a failure in September, 1929, at 3710 feet. However this test showed an estimated five million cubic feet of gas at 2691-2705 feet. Elevation of the present test is 234.6 feet, two feet lower than Arkansas Natural Gas Corporation's test.

Southeastern States Field Developments

MISSISSIPPI

New Operations

HINDS COUNTY—Joseph A. Baker et al, Hudson 1, ne nw ne 11-5-1e.

RANKIN COUNTY—James A. Alexander, Tr., Fitzhugh 2, nw ne 1-5-1e.

MONROE COUNTY—P. J. McAlpine et al, Chas. Rye 1, se nw 22-15s-17w.

Wildcat Drilling Report

(Wells shut down not included)

CLARKE COUNTY (Quitman) — F. X. Gowans, Elfring 1, se ne 13-1n-14e, wo cas, td 104 ft.

HINDS COUNTY—Miss.-Minn. Oil Co., Edwards Land Co. 1, sw ne 23-6n-4w, dr 3100 ft. (Wilcox).

LAMAR COUNTY (Purvis) — Stauffer & Kouri, Trs., Bond 1, se ne 18-2n-14w, 10-inch 1067 ft, td 1090 ft.

LOWNDES COUNTY — Lowndes County O&G Co., Carr Est, 1, ne nw 34-17-16, base Selma chalk 620 ft, dr sand 1060 ft.

MONROE COUNTY—P. J. McAlpine et al, Chas. Rye 1, se nw 22-15s-17w, rig.

STONE COUNTY—Hercules Sulphur Expl. Co., Lang 2, sw sw 28-3s-11w, sand 1971-92 ft, setting 6⅝ cas, td 1992 ft.

ALABAMA

CLARKE COUNTY (Jackson)—Tidal Oil Co. et al, Everett & Boykin 1, ne se 33-6n-2e, elev 65 ft, sd in Tuscaloosa sand, td 3523 ft (3500 ft contract depth).

LAMAR COUNTY (Vernon)—McAlpine et al, Gardner 1, nw nw 22-15s-16w, elev 324 ft (corrected), setting 8¼ cas 1600 ft, td 1635 ft (recently changed from rotary to cable tools).

MOBILE COUNTY—Ohio Oil Co., Bethel 1, nw sw ne 34-3s-2w, dk, move in rig.

WASHINGTON COUNTY—South Ala. O. & G. Co., St. Stephens A-1, 26-7n-1w, dk and move in rig.

TENNESSEE

CHESTER COUNTY—Gilmore et al, Scott 1, top Eutaw 1045 ft, cementing 8-inch cas to shut off water flow, td 1195 ft.

FLORIDA

DADE COUNTY—East Coast Oil Co., War-

ick 1, 12-55s-40e, trying to land 6⅝ cas at 5000 ft, td 5400 ft.

LEVY COUNTY — Suwanee Pet. Corp., Sholtz 1, nw se 9-15s-13e, tested sw through ds, wo td 4010 ft.

PINELLAS COUNTY—Pioneer Oil & Mining Co., Yerxa et al 3, 2-29s-16e, dr 1390 ft.

WALTON COUNTY—Calumet Co., Walton L&T Co. 1, se ne 7-1n-17w, dk pat. Oil City Corp., Walton L&T Co. 1, ne nw 12-1n-19w, dr shale strks black sand (Eutaw) 5030 ft.

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ARKANSAS FIELDS

Two Arkansas Wildcats Quit While One Starts

El Dorado, Ark.—Two wildcat failures were recorded in Arkansas during the week ending June 8 and one location for a wildcat test was announced. Both the tests abandoned were in Union County.

Southern Production Company's Wingfield 1, Section 16-19-15, was abandoned as a salt water hole in sand at 4512 feet, approximately 1500 feet below the deepest pay horizon in Arkansas. Pigeon Hill Oil Company's Union Sawmill 1, NW SW Section 19-17-12, was abandoned at 3818 feet. This test logged the Graves sand (one of the producing sands of Smackover), at 2762 feet and picked up the Blossom at 2887 feet, in both of which formations it tested salt water.

Fitzwater and associates' E. L. Beck 1, SW SE Section 33-15-26, Miller County, southwest Arkansas, is shut down at 2920 feet in shale, waiting for casing. There have been reports that two feet of a saturated sand were logged in this well, but scouts have been unable to verify the report. Miller County had a small oil producer completed at the 2850-foot level several years ago, but none of a number of subsequent tests were successful.

Arkansas Field Developments

Completions

UNION COUNTY—
Southern Prod. Co., Wingfield 1, 16-19-15 . . . . . * 4512
Pigeon Hill Oil Co., Union Sawmill 1, 19-17-12 . . . . . * 3818

New Operations

ST. FRANCIS COUNTY—E. R. Henderson, Mrs. W. B. Britton 1, 1000 ft s nwc, ne nw sec 1-4-1.

Wildcat Drilling Report

(Wells shut down not included)

ASHLEY COUNTY—D. S. Brooks et al, Crossett Lbr. Co. 1, sw se 31-15-6, top Nacatosch 3155 ft, dr 3818 ft.

DREW COUNTY — Cooperative Dev. Co., Ogles 1, 35-13-5, sd in sandy lime 2205 ft.

MILLER COUNTY—Fitzwater et al, E. L. Beck 1, sw se 35-15-26, top red beds 2812 ft, sd wo cas, td 2920 ft shale. Noel et al, Dickson 1, fsh ds, td 2600 ft.

OUACHITA COUNTY—Copenhaver et al, Berg 1, 13-15-17, wosr, 2208 ft.

SCOTT COUNTY — Heavener O&G Co., Reser 1, 36-4-26, fsh cas, td 1436 ft.

WASHINGTON COUNTY—Chase & Rogers, Cunningham 1, sw ne 14-15n-32w, lcn.

EASTERN STATES

Completions

Company, Well and Location	Initial Production Bbls.	Depth
WEST VIRGINIA		
BOONE COUNTY—		
Cambridge Gas Co., Lewis Hrs.	¶½	2494
LINCOLN COUNTY—		
Vernon Gas Co., Adkins 2	¶¼	2415
PUTNAM COUNTY—		
W. H. Kirtley & Co., Cottle 1	¶2	1734
SOUTHEASTERN OHIO		
WASHINGTON COUNTY—		
C. E Morris & Co., Burt 15	pressure	460
Swingle Hrs., Edwards 1	*	....
Buckley & McCall, Pryor 1	*	3200
E. J. Mildren & Co., Barber 1	*	3200
CENTRAL OHIO		
BELMONT COUNTY—		
Washmuth & Callahan, Neptune 1.	*	1828
FAIRFIELD COUNTY—		
City Natural Gas Works, Ruff 4	¶¼	679
GUERNSEY COUNTY—		
Chas. Smith & Co., House- Wilson 1.	¶¼	1231
MEIGS COUNTY—		
E. G. Harper & Co., Rysall 1	*	810
STARK COUNTY—		
White & Bacon, Slagle 2	¶3½	4378
East Ohio Gas Co., Charles 2	¶4¾	4426
SUMMITT COUNTY—		
East Ohio Gas Co., Keifer 2	¶½	4183
NORTHWESTERN OHIO		
SENECA COUNTY—		
Sandusky Gas Co., Creeger 1	¶¼	552
Tiffin Industrial Gas Co., Swartzmiller 1	¼	600
Tiffin Industrial Gas Co., Hunker 1.	¶¼	572
Ray Temple, Knepper 1	¶¼	563
J. H. Murphy & Sons, Knepper 3..	¶¼	1469
SANDUSKY COUNTY—		
L. W. Wells & Co., Draeger 1	*	....
WYANDOT COUNTY—		
McPherson & Co., Walton 1	*	1465
KENTUCKY		
DAVIESS COUNTY—		
S. H. Russell & Co., Neal 3	15	....
S. M. Sherman, Mayfield 2	75	....
Evans & Garrison, Barrett 1	*	590
Mecca Oil Co., Shultz 1	*	600
Mecca Oil Co., Shultz 2	*	600
Goldberg & Ellis, Harrison Bros. 2.	*	....
Samuel T. McGill & Co., Ashward Hrs. 1	*	....
HANCOCK COUNTY—		
Vicars & Co., Bannon 1	*	....
OHIO COUNTY—		
Fred Weir & Co., Unknown 1	*	....
Chester Oil Co., Chambers Motor 1	1	....
John Lyle, Unknown 1	*	....
MICHIGAN		
MIDLAND COUNTY—		
Talbot Oil Co., State Land C-2	360	....
Columbia Oil & Gas Co., Hornick 5.	550	....
Peninsula Oil Co., Hanners, Renner & Jones 1	*	....

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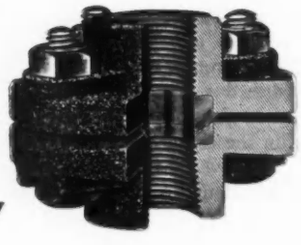
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New Equipment for the Field

MACHINERY - TOOLS CATALOGS - BOOKS

▼ ▼ ▼

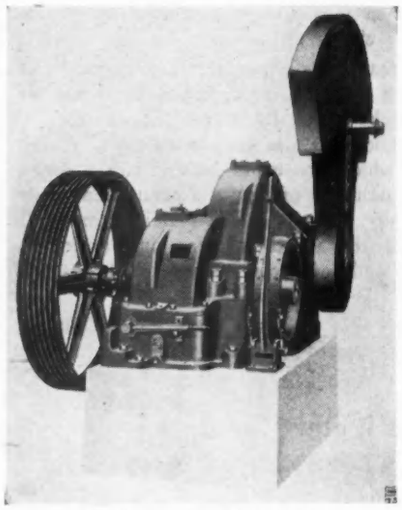
1. Pumping Gear

THE NATIONAL SUPPLY COMPANIES

The National Supply Companies announce a new "Ideal" Type F-3 pumping gear, a single reduction geared unit with an additional stage of V-belt reduction for driving a standard rig walking beam by engine or motor.

A sprocket is provided for driving a production hoist, and a clutch within the gear unit permits the hoist to be driven independently of the crankshaft during pulling operations.

Crankshaft, intermediate shaft, gears and pin clutch are all mounted in a heavily ribbed and totally enclosed casing which permits all working parts to operate in a bath of oil. Crankshaft and pinion shaft are mounted on two Hyatt Roller Bearings each.



National Pumping Gear

Type F-3 gears are precision-cut, wide-faced, full-depth, involute spurs. The gear ratio is conservatively low and the gearing is so designed as to give the unusually large capacity of 50 horsepower at 20 strokes per minute. Gears do not operate during pulling operations, being disconnected by means of a special type pin clutch.

The counterweighted crank provides a dynamic counterbalancing of the well load and acts not only as a counterweight but also as an energy-storing flywheel. The crank is bolted to a spider which, in turn, is keyed to the shaft. This construction has the advantage of allowing a change in the position of the crank to distribute wear on the main gear.

2. Steel Flooring

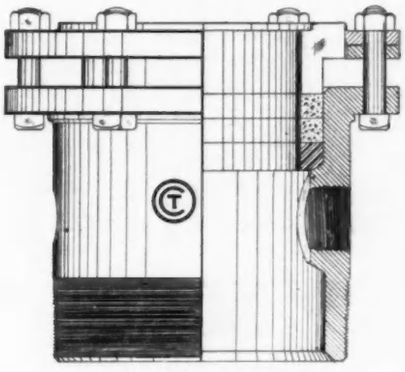
MELLON INSTITUTE OF INDUSTRIAL RESEARCH

Mellon Institute of Industrial Research, Pittsburgh, Pennsylvania, announces a new type of steel flooring fabricated by preforming two steel sheets and subsequently welding them together in the plane above the neutral axis. The flooring comes in slabs 24 inches wide and up to 12 feet 5 inches in length. In cross-section a unit of the flooring shows four keystone shaped cells, all connected together near the neutral axis, rendering it useful as a multiple floor-duct system for handling all types of electrical lines.

Braden Head

OIL CENTER TOOL COMPANY

Oil Center Tool Company, Inc., 924 Adele Street, Houston, Texas, announces a new, low-priced, semi-steel Type F casing or braden head, a low pressure head tested to 1000 pounds cold water pressure.



O. C. T. Braden Head

Each head is furnished complete with packing, packing ring, and split packing gland. The ends of the split packing gland overlap to insure even pressure on the packing at all points.

3. Gate Valve

KENNEDY VALVE MANUFACTURING COMPANY

Kennedy Valve Manufacturing Company, Elmira, New York, has placed on the market a new standard bronze solid wedge stationary stem gate valve for 125-pound steam pressure and 175-pound water pressure.

One of the features of this valve is the extra large bonnet hex which is placed close to the hub face joint where it screws into the body. This construction makes the valve particularly

— — — — — — ***MAIL COUPON*** — — — — — —

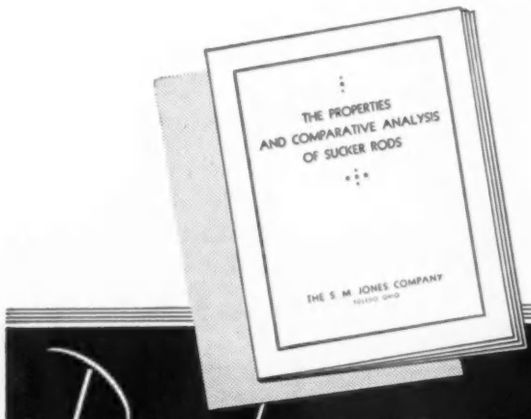
THE OIL WEEKLY,
Houston, Texas, U. S. A.

Please see that I am supplied, without obligation, additional information on New Equipment Items Nos. ———— described in the June 13, 1932, issue of THE OIL WEEKLY.

Name .....

Company .....

Address .....



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New Kennedy Gate Valve

rigid and also assists in removal of the bonnet and stem assembly when the valve is placed where clearances for installation are close.

Another feature is the extreme depth to which the stem engages with the disc, providing a large number of contact threads which practically eliminate possibility of stripping. Special attention has also been given to the design of the pipe end hexes which are made heavy, with a large number of threads for tightness of pipe end connections without make-up strains on pipe or valve. The stuffing box is provided with glands on all sizes and the packing rings are of molded square section and made of a composition which has a high graphite content.

The weights of all sizes meet United States government specifications, according to the manufacturer.

4. Feed Water Regulator

NORTHERN EQUIPMENT COMPANY

Northern Equipment Company, Erie, Pennsylvania, announces the Copes Type DA feed water regulator developed primarily for service on oil field boilers.

The Type DA reguator is a single unit. The valve is installed in a vertical feed line. No brackets or supporting members other than the ¾-inch steam and water connections are needed. The expansion tube is protected by heavy channel irons. Movement of the tube acts directly on the valve stem to move the disc, without intermediate leverage. The tube is in tension, a heavy spring at the heel piece end acting as a tension relief.

The regulator feeds continuously to a working boiler and stabilizes water level within safe limits.

Type DA regulator is furnished only with a two-inch valve of cast-iron or cast-steel, complete with 250-pound pressure standard companion flanges. It has a maximum capacity of 20,000 pounds per hour with a 15-pound pressure drop across the valve. It can be installed only in a vertical line.

Squeaks *from the* BULL WHEEL

She had just been hired for a job in the circus, and she said to the boss:

"Is there any particular advice you would like to give me about this work I am starting?"

"Well," said he, thoughtfully: "Don't ever undress in front of the bearded lady."

Preacher: I saw your husband drunk in the gutter last night, Mrs. Grady. A pig was lyin' beside him. I said, "Pat Grady, a body is known by the company he keeps."

Mrs.: Did he get up?

Preacher: No, but the pig did.

Boss: A man is never older than he feels. Now, this morning I feel as fresh as a two-year old!

Steno: Horse or egg!

Our pathway is a rocky one, said the sparrow to his wife. When all we see is tire tracks on the broad highway of life.

A girl met an old flame and decided to high hat him.

"Sorry," she murmured when the hostess introduced him to her. "I didn't get the name."

"I know you didn't," he answered, "but that's not your fault—you tried hard enough."

"Scientists say mosquitoes weep. Do you believe it?"

"Sure. I've seen a moth ball."

Polly: "Time separates the best of friends."

Archie: "It does. Thirteen years ago we were both 17. Now you are 21 and I'm 30."

One of Levinsky's customers simply would not pay for goods purchased. In desperation Levinsky sent the following letter:

"Sir—Who bought a lot of goods from me and did not pay?—You. But who promised to pay in 60 days?—You. Who didn't pay in six months?—You. Who is a scoundrel, a thief and a liar?—Yours truly, Al Levinsky."

"I'll teach you to make love to my daughter, sir."

"I wish you would, old boy. I'm not making much headway."

A celebrated violinist was urged to play his fiddle at a snooty affair on Park Avenue, New York.

"How much do you want?" he was asked.

"Five hundred dollars is my price," he replied.

"Of course you understand," said the hostess, "that you will not mingle with the guests."

"Oh, in that case," was the retort, "I'll do it for four hundred."

Said the teacher: "If I took a potato and divided it into two parts, then into four parts and each of the four parts into two more parts, what would I have?"

Little Johnnie: "Potato salad."

"What were your father's last words?"

"There were no last words. Mother was with him to the end."

Julia: "And at the end of his letter he put a couple of X's. What does he mean?"

Hilda: "Simple girl! It means he's double-crossing you."

Mistress: "Nora, you were entertaining a man in the kitchen last night, were you not?"

Maid: "That's for him to say, ma'am. I did my best."

Lawyer: "And where did you see him milking the cow?"

Witness: "Just a trifle beyond the center, sir."

Visitor—"What was your mummie's name before she was married?"

Young Innocence—"I think it must have been 'Savoy.' That's the name on our towels."

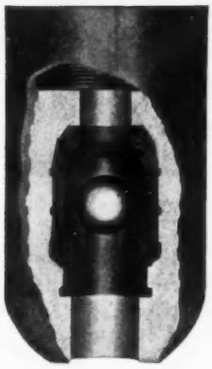
"Can I help you in any way?" asked the courteous motorist on an Irish road.

"It's this gasoline indicator," replied the damsel, standing beside her roadster. "It's at the half-way mark, but for the life of me I can't remember half full or half empty."

A negro servant came to her mistress the day before she was going to be married and asked her to keep her savings.

"But you don't want to give your money in my care?" asked the mistress, "I thought you were going to be married?"

"So I is, Missus, but do yo' s'pose I'd keep all dis money in de house wid dat strange nigger?"



Cutaway of a Baker Cement Float Shoe showing internal Concrete and Bakelite valve construction used in all Baker Cement (Floating) Equipment.

There is No Question Concerning These Facts

Baker Cement Equipment will unfailingly guide, float and cement casing in a well—regardless of length or weight of the string—and is well worth its cost.

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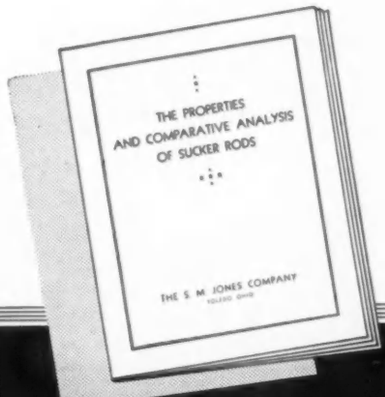
SEE COMPOSITE CATALOG FOR DETAILS

BAKER OIL TOOLS, Inc.

HUNTINGTON PARK, CALIFORNIA

COALINGA HOUSTON TULSA NEW YORK



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THE S. M. JONES CO.

TOLEDO · OHIO

Manufacturers of

JONES SUCKER RODS . . . the standard of comparison for 40 years

New Kennedy Gate Valve

rigid and also assists in removal of the bonnet and stem assembly when the valve is placed where clearances for installation are close.

Another feature is the extreme depth to which the stem engages with the disc, providing a large number of contact threads which practically eliminate possibility of stripping. Special attention has also been given to the design of the pipe end hexes which are made heavy, with a large number of threads for tightness of pipe end connections without make-up strains on pipe or valve. The stuffing box is provided with glands on all sizes and the packing rings are of molded square section and made of a composition which has a high graphite content.

The weights of all sizes meet United States government specifications, according to the manufacturer.

4. Feed Water Regulator

NORTHERN EQUIPMENT COMPANY

Northern Equipment Company, Erie, Pennsylvania, announces the Copes Type DA feed water regulator developed primarily for service on oil field boilers.

The Type DA reguator is a single unit. The valve is installed in a vertical feed line. No brackets or supporting members other than the ¾-inch steam and water connections are needed. The expansion tube is protected by heavy channel irons. Movement of the tube acts directly on the valve stem to move the disc, without intermediate leverage. The tube is in tension, a heavy spring at the heel piece end acting as a tension relief.

The regulator feeds continuously to a working boiler and stabilizes water level within safe limits.

Type DA regulator is furnished only with a two-inch valve of cast-iron or cast-steel, complete with 250-pound pressure standard companion flanges. It has a maximum capacity of 20,000 pounds per hour with a 15-pound pressure drop across the valve. It can be installed only in a vertical line.

Squeaks *from the* BULL WHEEL

She had just been hired for a job in the circus, and she said to the boss:

"Is there any particular advice you would like to give me about this work I am starting?"

"Well," said he, thoughtfully: "Don't ever undress in front of the bearded lady."

Preacher: I saw your husband drunk in the gutter last night, Mrs. Grady. A pig was lyin' beside him. I said, "Pat Grady, a body is known by the company he keeps."

Mrs.: Did he get up?

Preacher: No, but the pig did.

Boss: A man is never older than he feels. Now, this morning I feel as fresh as a two-year old!

Steno: Horse or egg!

Our pathway is a rocky one, said the sparrow to his wife. When all we see is tire tracks on the broad highway of life.

A girl met an old flame and decided to high hat him.

"Sorry," she murmured when the hostess introduced him to her. "I didn't get the name."

"I know you didn't," he answered, "but that's not your fault—you tried hard enough."

"Scientists say mosquitoes weep. Do you believe it?"

"Sure. I've seen a moth ball."

Polly: "Time separates the best of friends."

Archie: "It does. Thirteen years ago we were both 17. Now you are 21 and I'm 30."

One of Levinsky's customers simply would not pay for goods purchased. In desperation Levinsky sent the following letter:

"Sir—Who bought a lot of goods from me and did not pay?—You. But who promised to pay in 60 days?—You. Who didn't pay in six months?—You. Who is a scoundrel, a thief and a liar?—Yours truly, Al Levinsky."

"I'll teach you to make love to my daughter, sir."

"I wish you would, old boy. I'm not making much headway."

A celebrated violinist was urged to play his fiddle at a snooty affair on Park Avenue, New York.

"How much do you want?" he was asked.

"Five hundred dollars is my price," he replied.

"Of course you understand," said the hostess, "that you will not mingle with the guests."

"Oh, in that case," was the retort, "I'll do it for four hundred."

Said the teacher: "If I took a potato and divided it into two parts, then into four parts and each of the four parts into two more parts, what would I have?"

Little Johnnie: "Potato salad."

"What were your father's last words?"

"There were no last words. Mother was with him to the end."

Julia: "And at the end of his letter he put a couple of X's. What does he mean?"

Hilda: "Simple girl! It means he's double-crossing you."

Mistress: "Nora, you were entertaining a man in the kitchen last night, were you not?"

Maid: "That's for him to say, ma'am. I did my best."

Lawyer: "And where did you see him milking the cow?"

Witness: "Just a trifle beyond the center, sir."

Visitor—"What was your mummie's name before she was married?"

Young Innocence—"I think it must have been 'Savoy.' That's the name on our towels."

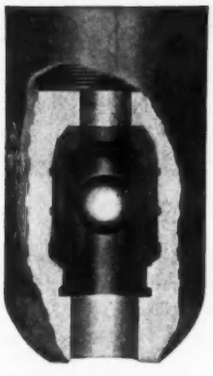
"Can I help you in any way?" asked the courteous motorist on an Irish road.

"It's this gasoline indicator," replied the damsel, standing beside her roadster. "It's at the half-way mark, but for the life of me I can't remember half full or half empty."

A negro servant came to her mistress the day before she was going to be married and asked her to keep her savings.

"But you don't want to give your money in my care?" asked the mistress, "I thought you were going to be married?"

"So I is, Missus, but do yo' s'pose I'd keep all dis money in de house wid dat strange nigger?"



Cutaway of a Baker Cement Float Shoe showing internal Concrete and Bakelite valve construction used in all Baker Cement (Floating) Equipment.

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CATALOGS BULLETINS

Helpful Publications Which Manufacturers Will Be Glad to Send Free for the Asking.

Monel Metal Bolts

The International Nickel Company, 67 Wall Street, New York, has released for distribution Bulletin T-1 describing properties, uses and types of Monel Metal bolts.

Petroleum Bibliography

"Recent Articles on Petroleum and Allied Substances" is the title of a 64-page bibliography compiled by the United States Bureau of Mines in co-operation with the American Petroleum Institute and the Special Libraries Association, and distributed in June by the San Francisco, California, branch of the bureau at 506 Custom House Building.

Nickel Alloy Steel Castings

International Nickel Company, 67 Wall Street, New York, recently issued loose-leaf bulletin No. 8-A devoted to nickel alloy steel castings and containing data compiled by A. G. Zima.

Pipe Threader

The Borden Company, Warren, Ohio, has for distribution Form 117, a folder describing the Beaver No. 17 pipe threader which may be operated by hand or power.

Compressors and Vacuum Pumps

Fuller Company, Catasauqua, Pennsylvania, has published Bulletin C-3, a 16-page illustrated booklet describing single and two-stage compressors and vacuum pumps, together with auxiliary equipment for same.

Gauge Glass

The Inferno Company, Box 1080, has recently published an atractive bulletin, illustrated, which tells a detailed story of the new Inferno high pressure water gauge glass, designed particularly for safety against blowouts and at the same time providing increased visibility. A copy of this bulletin will be mailed to interested operators upon request.

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BYRON SMITH

Oil Center Tool Company, Houston, announces the appointment of Byron Smith, formerly associated with Peden Company in Dallas and Houston, as City salesman at Houston.

USE THIS COUPON
(Address manufacturer direct)

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Gentlemen:

Please send to me, without obligation, free booklet described in THE OIL WEEKLY of June 13, 1932.

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Light

Nowadays, thanks to the farm light plant, the farmer is released from the fear of the setting sun. He continues his work in the field until the last minute, knowing that at the snap of a switch he will have all the light he needs for his chores. And his wife enjoys the same electrical conveniences, the same modern plumbing, and the same brilliant light as her most affluent city cousins.

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Gasoline has changed the entire aspect of life for the farmer. It pumps his water. It saws his wood. In the tractor it multiplies his man power. In the automobile it brings the city nearer by hours, sometimes days. And in the motor truck it hauls his products to market.

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Petroleum is truly a precious fluid, and Halliburton is proud to have contributed to its development. Through its oil well cementing developments it has prevented the loss of millions of barrels annually.

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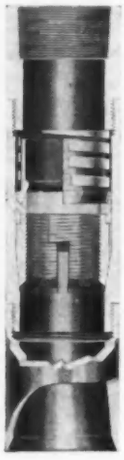

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• *made possible with*

AMERICAN OVERSHOTS

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Is the reason why drilling has been speeded up and time saved on 4 out of 5 fishing jobs in the East Texas field.

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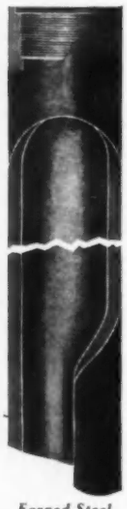

Forged Steel Wall Hook

The Overshot is only one of many tools made by American Iron & Machine Works Co., that are preferred by 95% of the producers in East Texas, also in oil fields around the world, wherever petroleum is produced.

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